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VAN DIE REDAKSIE

LIGGAAMLIKE GESKIKTHEID

Verdere navorsing is nodig ten einde ons kennis aangaande individuele vermoë om liggaamlike werk te verrig, uit te brei. Daar is nog baie leemtes op hierdie gebied wat van aansienlike belang is vir die individu sowel as vir die redelike aanwending van arbeidskrag. Die liggaamlike geskiktheid van 'n persoon vir 'n bepaalde werk is nie alleen afhanklik van sy liggaamlike toegerustheid nie, maar ook van die omstandighede waaronder hy afgerig word of die oefeninge wat met die voorbereiding van daardie werk uitgevoer word. Liggaamlike geskiktheid sal 'n bepaalde vorm moet aanneem vir spieraktiwiteit van 'n bepaalde soort volgens die eise wat aan die organisme gestel word met die uitvoering van die aktiwiteit. Enige van die ondersoeke wat ingestel is i.v.m. hierdie vraagstuk, word in 'n onlangse oorsig opgesom.[1] Onder andere word oorweging geskenk aan onderwerpe, soos geskiktheid vir langdurige werk, beperkende faktore met sulke werk, die uitwerking van afrigting, toetsmetodes, en sekere toepassings op industriële werk.

Meer gevorderde ouderdomsgroepe is van besondere belang omdat daar in die meeste lande 'n toenemende persentasie van die bevolking tot hierdie groepe toetree; uit 'n sosiale en ekonomiese standpunt beskou, is hulle geskiktheid van belang. Die weinige stelselmatige ondersoeke wat ingestel is ten einde metabolisme gedurende uitputtende werk te bepaal, het 'n ooreenstemmende vermindering van asemhalingsvermoë met toename in ouderdom aangetoon. Die proefnemings is nie bo kritiek verhewe nie, maar dit wil voorkom of 'n fundamentele verandering gedurende die verouderingsproses in die weefsels tussen die haarvate en die selle plaasvind. As gevolg hiervan word die oordrag van suurstof en voedsel vertraag. Etlike verskillende faktore wat verminderde liggaamlike geskiktheid en verrigting as gevolg van die verouderingsproses veroorsaak, word deur die outeur aangehaal. Hy opper die baie belangrike vraagstuk of die veranderinge wat in ouer persone beskryf word onvermydelik is, of gedeeltelik ten minste aan leefwyse toegeskryf moet word. Sekere lewensgewoontes, waarvan gereelde liggaamsoefening 'n deel uitmaak, mag die prosesse van agteruitgang wat met veroudering gepaard gaan, vertraag.

EDITORIAL

PHYSICAL FITNESS

Further research is necessary to increase our knowledge concerning the capacity of individuals to perform physical work. There are many gaps in this field, which is of great importance both for the individual and for the rational utilization of man-power. The physical fitness of an individual for a specific task depends not only on his natural endowment but also on the conditions of training or the exercises performed in preparation for that task. Physical fitness will need to take a particular form for muscular work of a particular kind according to the demands made upon the organism when doing that work. Some of the investigations that have been made in connection with these problems are summarized in a recent review.[1] Amongst other topics that are considered are fitness for prolonged work, limiting factors in such work, the effect of training, test methods, and some applications to industrial work.

Older age-groups are of special interest, since in most countries an increasing percentage of the population is entering these groups; their fitness is important from the social and economic point of view. The few systematic investigations that have been carried out in measuring metabolism during exhausting work have shown a consistent decrease in aerating capacity with advancing age. The experiments are open to criticism, but it would seem that in the aging process a fundamental change between the capillaries and the cells takes place in the tissues. As a result of this the passage of oxygen and food is retarded. Many different factors that may cause diminished physical fitness and performance as a result of aging are quoted by the author. He raises the very important question whether the changes described in older persons are inevitable or whether they are due, in part at least, to a way of living. A type of living routine, in which regular physical exercise is included, might reduce the degenerative processes associated with aging.

Op voorwaarde dat meganiese doeltreffendheid nie grootliks wissel nie, behoort die vermoë om volgehoue harde werk te verrig, afhanklik te wees van 'n persoon se kapasiteit vir suurstofopname. Asemhalingsvermoë is 'n belangrike faktor by uithouvermoë, maar meganiese doeltreffendheid, tegniek of behendigheid, is nog 'n beslissende faktor. By eenvoudige bewegings, wat deur groot spiergroepe teweeggebring word, vertoon meganiese doeltreffendheid slegs geringe individuele afwisseling. Meer ingewikkelde aktiwiteite word egter deur groter individuele gekenmerk

Afrigting kan doeltreffendheid verhoog, sodat die verminderde asemhalingsvermoë wat bv. met veroudering gepaard gaan, nie noodwendig verminderde vermoë om hard werk te verrig, hoef te veronderstel nie. Daar word oor die algemeen onderskei tussen tegniese afrigting wat poog om die vermoë van 'n besondere werkverrigting te verbeter en afrigting in uithouvermoë ten einde veral die suurstof-oordragstelsel van die persoon te verbeter. Die veelvuldige ondersoeke en bevindings met afgerigte persone word deur die outeur voorgehou, wat tot die slotsom kom dat ons niks omtrent die wese van afrigting weet nie, al weet ons ook iets omtrent die uitwerkings daarvan op liggaamsfunksies. Meer intensiewe navorsing i.v.m. die fisiologie van afrigting word benodig met die oog op die belangrikheid van liggaamsafrigting vir nywerheid en atletiek, en vir rehabilitasie.

Die kwantitatiewe bepaling van liggaamlike geskiktheid is 'n baie ingewikkelde saak en een van die mees betwisbare probleme by toegepaste fisiologie. By die toets van persone is die geskiktheid van asemhaling en bloedsomloop belangrik, maar vir besondere noukeurigheid by die waardebepaling van 'n persoon, behoort die funksies wat getoets moet word, eers ontleed te word. Vir hande-arbeid behoort 'n mens te weet watter vereistes daar aan die persoon gestel word deur die werk en wat sy werksvermoë is; indien die werk nie 'n vermoeiende uitwerking moet hê nie, behoort die arbeider se vermoë om suurstof op te neem, ten minste dubbeld so veel te wees as wat werklik benodig word. Die liggaamlike geskiktheid (asemhalingsvermoë) van vroue is ook bestudeer. Vroue het ook hul plek in nywerheid, miskien in deeltydse werk. Al het vroue ook vergelyklik 'n geringer vermoë vir harde liggaamlike werk as mans, het hulle bv. in landbou getoon dat hulle geskik is vir veeleisende werk.

1. Aastrand, P. O. (1956): Physiol. Rev., **36**, 307.

Provided mechanical efficiency does not vary overmuch, the ability to perform sustained heavy work should depend on the capacity of an individual for oxygen intake. Aerating capacity is an important factor in endurance, but mechanical efficiency, technique or skill is another decisive factor. In simple movements produced by large muscle-groups, mechanical efficiency shows only small individual, variations. More complicated efforts, however, are characterized by greater individual variations.

Training can increase efficiency so that the low aerating capacity accompanying increasing age, for instance, need not imply reduced capacity to perform heavy work. There is generally a distinction between technical training which attempts to improve ability for a particular performance, and endurance training to strengthen the individual, especially in the oxygen-transport system. The many investigations and findings in trained subjects are presented by the author, whose comment is that we know nothing about the essence of training, even if we know something about the effects of training on the body functions. Intensified research is needed in the physiology of training in view of the importance of physical training in industry and athletics, and for rehabilitation.

The quantitative estimation of physical fitness is a very complex subject and one of the most controversial problems in applied physiology. In the testing of individuals, the fitness of respiration and circulation is important, but for great accuracy in evaluating an individual an analysis should first be made of the functions to be tested. For manual labour one should know what demands are made on the individual by the work, and what is his capacity; if the work is not to have a tiring effect, the workman should have a capacity for oxygen intake that is at least twice as great as that actually required. The physical fitness (aerating capacity) of women has also been studied. There is a place for women in industry, perhaps in part-time work. Even if women have a relatively lower capacity than men for heavy physical work, they have shown, in their employment in agriculture for instance, that they are fit to do a hard job.

1. Aastrand, P. O. (1956): Physiol. Rev., **36**, 307.

THE TREATMENT OF THYROTOXICOSIS

The sight of a runaway horse in full career is one that arouses strong reactions in most onlookers. If the driver continues madly lashing at his steed, many would feel that it is he who requires to be placed under restraint. Others again, less logical, would prefer to see the horse shot or hamstrung.

Our approach to the problem of thyrotoxicosis has until recently been of the less logical kind. We know that the thyroid gland has run wild and is being spurred on by the uncontrolled action of the pituitary through its thyrotropic hormone. But until quite recently we have restricted our attentions to the thyroid rather than to its master. That this should be so is only natural: the thyroid lies invitingly in the front of the neck and is relatively easy to approach. The pituitary on the contrary, is deeply placed in the very centre of the skull and, moreover, it is embraced by the optic tracts with large blood-vessels in the immediate neighbourhood. Technically, attack by surgery on the pituitary is a difficult and hazardous procedure; until recently it had

been very rarely accomplished and then in a few specialized centres only.

Since the days of the immortal Theodore Kocher of Berne, 50 years have passed and a vast amount of experience has become available, which has rendered the technique of thyroidectomy relatively easy and has made the operation one of the more successful surgical manoeuvres. It is safe, relatively simple, and fairly certain. The underlying illogicality of the procedure was forgotten in the satisfaction that we gained from contemplating our successes—thyrotoxicosis had become a surgical disease.

For half a century the physicians, with increasing chagrin, watched the surgeon perfecting his techniques and developing his methods. But now the invention of radio-active isotopes has come to their aid. Radio-active iodine is absorbed by thyroid tissue, which thus encompasses its own destruction by the selectively absorbed and concentrated iodine 131. The physicians gladly adopted this new theory, and happily invoking the aid of Hephaestus, have sought with celestial flames, to destroy the offending gland. The procedure is simple and achieved by administering a single draught, and the dosage can be fairly accurately measured. The disease could now be safely restored to the physicians—the underlying illogicality of a procedure which exchanges one physical method for another was quickly overlooked, and an era of thyroid destruction by irradiation commenced.

Recently, however, some doubts have begun to arise in our minds. Everybody knows about the results of operative thyroidectomy, and the experience of over half a century has shown us that the procedure is safe even when a long-term view is taken. No such long-term experience is available concerning the effects of this method of radio-active thyroidectomy. Indeed, many biologists are doubtful of the wisdom of allowing a concentration of radio-active material—constantly diminishing, it is true, but nevertheless constantly present—to remain for an indefinite time in the tissues of the patient's neck. Can this have the effect of initiating carcinoma? These doubts have rightly led to hesitation in the exhibition of radio-active iodine, and once again the whole condition is open for re-examination. The illogical nature of the treatment is now appreciated and efforts are being made to find a drug which might act directly on the pituitary rather than on its thyroid handmaiden. While it is true that thio-uracil, propylthio-uracil and suchlike preparations act on the thyroid, nothing irrevocable is done because their action is temporary and ceases when treatment is stopped. Their use is at present fraught with a certain risk, admittedly small, of agranulocytosis. Nevertheless, this is a direction in which we must look for further developments in the treatment of this relatively common disease.

In the meantime, the crazy horseman still rides unchecked.

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EXPERIMENTAL BILHARZIASIS IN LABORATORY ANIMALS

V. IMMUNITY IN MICE PRODUCED BY REPEATED SMALL INFECTIONS*

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It has long been known that in countries where bilharziasis is endemic the incidence of infection decreases with age. Fisher (1934) attempted to infect 6 men over 35 years of age living in a hyper-endemic area. After 8 months only 3 of the 6 passed a few ova for a brief period. The majority of workers are agreed that in animals the number of cercariae which develop into adult worms is far less in the second infection than in the first infection. This, however, has not been the experience of all investigators (Newcombe, 1956).

The object of the work reported here is to confirm the reduction in the number of adult worms recovered after repeated infections and to determine whether any differences could be found in the pathology after single and repeated infections.

* Articles I, II, III and IV of the series were as follows:

I. *Early diagnosis of bilharziasis* (1952): S. Afr. Med. J., **26,** 1005.
II. *Correlation of biochemistry ('liver function tests') and histopathological changes in the liver in early bilharziasis* (1953): *Ibid.*, **27,** 950.
III. *A comparison of the pathogenicity of* S. bovis, *South African and Egyptian strains of* S. mansoni *and* S. haematobium (1956): *Ibid.*, **30,** 79.
IV. *Chemoprophylaxis in bilharziasis* (1956): *Ibid.*, **30,** 611.

Material and Methods

Adult Swiss albino mice were infected with the cercariae of an Egyptian strain of *Schistosoma mansoni* by intraperitoneal injection. Some mice received single injections and others received weekly injections. Their stools were examined for the presence of ova. After varying intervals the mice were killed and the number of worms in the liver and mesentery were counted. Sections of liver, spleen, lung and large gut were prepared and stained with haematoxylin and eosin and Masson's trichrome stain.

Results

The worm-recovery rate is summarized in Table I. The average number of worms recovered per 100 cercariae injected was 23·5 after a single infection as compared with 1·5 per 100 cercariae after repeated weekly infections.

The pathological changes are shown in Table II. It can be seen that with repeated infections after 20-24 weeks the pathological changes correspond to those found as soon as 8 weeks after a single infection. However, between the 24th and 38th week there is no significant difference between the two groups. It is of great

TABLE I. THE NUMBER OF ADULT *S. mansoni* RECOVERED FROM MICE AFTER SINGLE AND REPEATED INFECTION WITH CERCARIAE

Single infection				*Repeated infections*			
Number of mice	*No. of cercariae injected per mouse*	*No. of worms recovered per mouse*	*No. of worms recovered per 100 cercariae per mouse*	*No. of cercariae × No. of injections per mouse*	*Total No. of cercariae injected per mouse*	*No. of worms recovered per mouse*	*No. of worms recovered per 100 cercariae per mouse*
18	50	8	16	10×10	100	2	2
18	180	47	26	16×10	160	0	0
10	200	32	16	18×10 +2×20	220	1	0·5
				18×10+ 2×20	220	3	1·5
6	250	89	36	18×10+ 6×20	300	6	2
				18×10+13×20	440	22	5
				18×10+20×20	580	11	2
				18×10+29×20	760	0	0
				18×10+29×20	760	2	0·25
Average			23·5				1·5

TABLE II. PATHOLOGICAL CHANGES IN MICE AFTER SINGLE AND REPEATED INFECTION WITH *S. mansoni*

Repeated weekly infections				*Single infection*			
Weeks after first infection	*No. of animals examined*	*Lesions found*	*No. of animals showing lesion*	*Weeks after infection*	*No. of animals examined*	*Lesions found*	*No. of animals showing lesion*
9	1	No significant pathological changes	1	3— 9	8	Infiltration of portal tracts by lymphs, polys and eosins.	8
						Numerous early and a few medium granulomata in liver.	5
						Foci of parenchymal necrosis in liver	2
						Adult worms in liver	2
						Granulomata around ova in lung	1
16	1	Numerous medium granulomata around ova in liver	1	12—16	8	Numerous medium granulomata around ova in liver	8
						Granuloma around adult worm in liver	1
						Foci of parenchymal necrosis in liver	5
						Adult worms in liver	4
						Diffuse fibrosis in liver	2
						Bile-duct proliferation and onkocytic change	1
						Granulomata around ova in lung	2
						Granulomata around adult worms in lung	1
20	2	Lymphocytic infiltrate in portal tracts	2	17—19	6	Numerous medium granulomata around ova in liver	5
		Few ova in portal tracts without granulomatous reaction	1			Lymphocytic infiltrate in portal tracts with a few ova without granulomatous reaction	1
						Granulomata around adult worms in liver	2
						Foci of parenchymal necrosis in liver	2
						Adult worms in liver	3
						Diffuse fibrosis in liver	2
						Bile-duct proliferation	3
						Onkocytic change in bile-ducts	2
						Granulomata around ova in lung	4
24	1	Moderate number of early and medium granu.omata around ova in liver	1	21—24	4	Numerous granulomata at all stages around ova in liver	4
		Diffuse fibrosis in liver				Granuloma around adult worm in liver	1
		Slight bile-duct proliferation and onkocytic change				Adult worms in liver	2
						Diffuse fibrosis in liver	2
		Infiltration of lymphs, polys and eosins around ova in lungs				Bile-duct proliferation and onkocytic change	4
						Granuloma around adult worms and ova in lung	1
31	1	Moderate number of granulomata mostly old and fibrosed in liver	1	26—28	8	Numerous granulomata at all stages around ova in liver	8
		Foci of parenchymal necrosis in liver				Granuloma around adult worm in liver	1
						Foci of parenchymal necrosis in liver	3
						Adult worms in liver	4
						Diffuse fibrosis in liver	7
						Bile-duct proliferation	4
						Onkocytic change in bile ducts	3
						Granulomata around ova in lungs	2
						Granulomata around adult worm in lung	1
38	1	Numerous early and medium granulomata in liver	1	33—36	5	Numerous granulomata at all stages around ova in liver	4
		Slight diffuse fibrosis in liver				Numerous early and medium granulomata in liver	1
		Slight bile-duct proliferation				Foci of parenchymal necrosis in liver	2
						Adult worms in liver	2
						Diffuse fibrosis in liver	3
						Bile-duct proliferation and onkocytic change	1
47	2	Numerous early and medium granulomata and one old granulomata around ova in liver	1	40—48	6	Only pigment in portal tracts	1
						Round-cell infiltration in portal tracts	3
						Early and medium granulomata around ova	1
		Few early and medium granulomata in liver	1			Early and medium granulomata and one old granuloma	1
		Slight bile-duct proliferation	1				
		Granulomata around ova in lungs	2				

Early granuloma = A zone of endothelioid cells around the ovum surrounded by a zone of polymorphonuclear leucocytes, eosinophils and lymphocytes. No fibrous tissue.
Medium granuloma = As above but with slight fibrosis around periphery.
Old granuloma = Dense mass of concentrically arranged fibrous tissue.

interest to note that 40-48 weeks after a single infection there is a tendency to spontaneous cure.

SUMMARY

1. The effect of repeated infections of mice with *S. mansoni* has been studied with special reference to the percentage of cercariae which mature to adult worms and the pathological changes produced.

2. After repeated weekly infections 1·5% of cercariae mature to adult worms as compared with 23·5% after a single infection.

3. With repeated weekly infections the pathological changes occurring after 20-24 weeks correspond to those found only 8 weeks after a single infection. After 24 weeks there is no significant difference between the two groups.

4. There is a tendency to spontaneous cure 40–48 weeks after a single infection.

5. It would appear that repeated infections produce a certain degree of immunity.

We are indebted to Mr. E. C. England, Mrs. H. E. Paterson and Miss V. Williams of the South African Institute for Medical Research and the South African Council for Scientific and Industrial Research for technical assistance.

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HEART DISEASE IN PREGNANCY

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In this paper I shall give a review of 187 consecutive cases of heart disease in pregnancy under the care of the Teaching Maternity Units of the University of Cape Town during the 3 years 1952–54. Certain figures which I have gleaned from available overseas maternity hospital reports will be cited and compared with our own in Cape Town. Special consideration will be given to the question of therapeutic abortion and valvotomy.

Incidence of Heart Disease in Pregnancy

Table I shows the incidence of heart disease in pregnancy in the Cape Town Teaching Maternity Units

TABLE I. INCIDENCE OF CARDIAC DISEASE

Year	*No. of Cases*	*Total No. of Deliveries*	*Percentage Incidence*
1952	57	7,044	0·8
1953	51	7,315	0·7
1954	79	7,713	1·0
Total	187	22,072	0·8

fot the 3 years 1952–54. An increase is seen in 1954. In Table II I have compared our Cape Town incidence of heart disease in pregnancy with that of 3 other hospitals, viz. Queen Charlotte's, London, the National Maternity, Dublin, and the Rotunda, Dublin. The Cape Town incidence is approximately the same as that of the Rotunda but about half that of Queen Charlotte's and the National Maternity. The incidence at the National Maternity is 3 times that of the Rotunda in the same town. Rheumatic heart disease, which accounts for the bulk of the cases in all centres, is

TABLE II. INCIDENCE OF CARDIAC DISEASE IN PREGNANCY IN DIFFERENT HOSPITALS

Hospital	*Years*	*Total Deliveries*	*Cardiac Incidence*
Queen Charlotte's	1947-50	14,799	1·5
National Maternity	1949-52 +1954	23,832	1·8
Rotunda	1949+ 1951-54	28,184	0·6
Teaching Hospitals, Cape Town	1952-54	22,072	0·8

supposed to be commoner amongst the poor and in temperate climates. I feel reasonably certain that our patients in Cape Town are much worse off economically than those of Queen Charlotte's in London. Most of the cases in the Cape Town series were non-European, chiefly Cape Coloured. In view of the difference shown in Table II between the two Dublin hospitals it can hardly be deduced that the difference between Queen Charlotte's and Cape Town is to be explained by the colder climate of London.

Non-Booked Cases

During the 3 years 37 of the cardiac cases were 'non-booked' cases (19·8%). The percentage for 1954 was about double that of the previous 2 years.

Types of Heart Disease in Pregnancy

Table III shows the different types of heart lesion encountered in this series. Over the 3 years 153 patients

TABLE III. TYPES OF HEART LESION

Heart Lesion	1952	1953	1954	*Total*
Mitral Disease	41	33	50	124*
Mitral and Aortic Disease	9	3	17	29†
Aortic Stenosis	1	2	1	4
Aortic Regurgitation	2	4	5	11
Congenital	1	5	1	7
Acute Rheumatic Fever	—	1	—	1
Myocarditis	—	2	—	2
Auricular Fibrillation	—	1	—	1
Hypertension	1	1	3	5
Heart Block	—	—	1	1
Nutritional	1	—	—	1
Acute Pulmonary Oedema	—	—	1	1
Total	57	51	79	187

* 153. † 81·8%

were suffering from mitral disease, or 81·8% of all the cardiac cases. The number of cases which are of rheumatic origin is not accurately known, but is probably over 90%. Table IV was prepared by Lewis[1]

TABLE IV. INCIDENCE OF TYPES OF HEART DISEASE IN 485 PREGNANT WOMEN COMPARED WITH INCIDENCE IN NON-PREGNANT WOMEN

T. L. T. Lewis[1], from A. Morgan Jones[14]

Pregnant	%	*Non-Pregnant*	%
Rheumatic	90	Hypertensive	30
Congenital	7	Coronary	25
Hypertensive	2	Rheumatic	25
Others	1	Pulmonary	5
Thyrotoxic	—	Thyrotoxic	5
Coronary	—	Syphilitic Aortitis	3
Syphilitic	—	Congenital	2
		Endocarditis	2
		Others	3

from Morgan Jones's book on Heart Disease in Pregnancy.[14] It gives the incidence of different types of heart disease in a series of pregnant and non-pregant women. The prominent place occupied by rheumatic heart disease in pregnancy is again evident.

Obstetrical management of cardiac patients

Cardiac patients in functional grades 1 and 2 must be seen fortnightly until the 20th week of pregnancy and then every week. Adequate rest and sleep are essential, while activity should be restricted to that which places no undue strain on the heart. Complications such as anaemia, respiratory infection and toxaemia must be prevented or treated promptly should they occur. In

view of the fact that the cardiac burden is maximal from about the 28th to the 32nd week, it is probably wise at this juncture to admit all patients of grade 2 into an institution, or keep them under close observation at home, for a period of about 4 weeks. Further admission to hospital for every patient in grade 1 or 2 7–10 days before her due date of delivery will ensure that she goes into labour in the fittest possible state.

Mendelson and Pardee,[2] in their study of 200 cases, came to the conclusion that a pulse rate over 110 per minute together with a respiratory rate over 24 per minute in the first stage of labour must be considered as a warning of impending failure, even though this may not develop in all cases.

Patients belonging to functional grades 3 and 4 should be admitted to hospital immediately for the duration of their pregnancy. Should there be no improvement with bed rest and medical treatment in the grade-4 patients, therapeutic abortion or valvotomy must be considered. (see below).

The number of pregnant women with *congenital heart-lesions* will no doubt increase because of the successful operations on children.

Patients without cyanosis tolerate pregnancy well. If cyanosis is continuously present or easily produced, one should consider termination or surgery for the heart lesion. All are agreed that coarctation of the aorta calls for Caesarean section because of the risk of rupture of the aorta.

Termination of Pregnancy

Most people seem to feel that there is a place for termination in the management of heart disease in pregnancy and that the termination should be carried out in the early weeks of pregnancy—preferably before the 20th week, for after this time the risk involved is greater than the risk of going through with the pregnancy and confinement. The advent of the operation of valvotomy has caused some authorities to modify their views and they are now of the opinion that this operation should be seriously considered before resorting to therapeutic abortion.

Lewis[1] advises that the pregnancy should be terminated only when valvotomy is not advisable. The conditions calling for termination are that the patient is of the functional grades 3 or 4 or shows auricular fibrillation or has had heart failure before, either apart from or during a pregnancy. Before termination is advised, however, one should always try the effect of complete bed-rest and adequate medical treatment. He thinks that termination should only be carried out from below and therefore before the 14th week.

MacRae[3] states that therapeutic abortion must be considered before the 20th week of pregnancy for patients who remain in grades 3 and 4 in spite of rest and treatment.

There is, of course, the school at the National Maternity Hospital, Dublin, who never terminate, and their results do not appear to be any worse than those of the Rotunda Hospital in the same town where therapeutic abortion is practised. The belief of these non-interventionists has now been further strengthened by the possibility of the performance of valvotomy on those patients whom others may have considered suitable candidates for termination. F. J. Browne[4] states; 'There certainly is, in the majority of cases, no longer any justification for terminating pregnancy and sterilizing any woman with mitral stenosis and congestive failure.'

Gorenberg, discussing a paper by Mendelson,[5] states that patients with heart disease of grade 3 or 4 before pregnancy, and those with a history of failure, should be hospitalized as soon as pregnancy is diagnosed and kept at absolute bed-rest until delivery. He is of the opinion that therapeutic abortion has no place in this problem. If the patient is seen early enough for abortion it is early enough for good medical care and she may be allowed to go through pregnancy.

Ian Donald,[6] in his excellent text-book, does not commit himself on the question of termination of pregnancy. He says: 'There is some conflict of opinion here. Morgan Jones, for example, advises termination within the first 3 months in both the severer grades. Barry (of the National Maternity Hospital, Dublin) at the other extreme says that there is never any indication for it, for if a patient is not in failure termination is next door to manslaughter. The latter point of view can only be supported if the patient can be persuaded to spend the whole of her pregnancy under supervision in hospital.' He states further: 'All are agreed that after the 12th week the risks of termination are greater than those of continued pregnancy and normal delivery at term, for abdominal hysterotomy will now be the method of choice and is certainly more dangerous than a natural vaginal delivery.' I doubt whether this statement is quite correct because, as far as I can determine, many cases are terminated by hysterotomy between the 12th and the 20th week without any apparent deterioration in the cardiac state. Donald goes on to write: 'The problem arises in its most acute form when cardiac failure persists in spite of treatment, but in this dreadful dilemma it is as well to remember that termination of pregnancy will be tantamount to driving the last nail into the patient's coffin, and should she die without termination one can only reflect that she could not have been saved in any case by operating.'

Method of Termination

At Queen Charlotte's Hospital in the 4 years 1947–50 termination of pregnancy was performed 7 times in 228 cardiac cases. The maturity of the foetus was 9, 10, 12, 16, 16, 16 and 18 weeks. Hysterotomy was performed in each case. Three of these patients were sterilized (9, 12 and 16 weeks).

In our series of 187 cardiac cases in Cape Town pregnancy was terminated in 4 cases (2·1%)—all in the year 1954, all in 'non-booked' cases, and all by the method of abdominal hysterotomy. The maturity of the foetus was 15, 12, 20 and 9 weeks. Sterilization was carried out in each case. The indication for termination in 3 of the cases seems not to have been the cardiac disease alone. In each of these 3 cases the cardiac condition on admission belonged to functional grade 2. In one the blood pressure was 180/120 mm. Hg at the 14th to 15th week of pregnancy. In the second the patient, aged 47, was an established case of essential

hypertension with a blood pressure of 280/160 on one occasion with ++ albumen in the urine (a previous pregnancy in 1951 had been associated with a blood pressure of 230/120 and ended in spontaneous abortion). The third case was one of essential hypertension (blood pressure 210/130) and albuminuria. The heart was enlarged but 'there was no evidence of failure'. Only in one case does there seem to have been a genuine cardiac indication for therapeutic abortion.

Valvotomy

The place of valvotomy in the management of mitral disease in pregnancy is not yet clear. MacRae[7] suggests that we should consider for valvotomy those patients who, despite medical treatment, remain in functional grades 3 or 4 and for whom continuance of the pregnancy is desirable. Others again feel that valvotomy is best carried out after delivery or termination of pregnancy (Hamilton[8]). It is pointed out that at present there is still uncertainty about the immediate response to valvotomy and the time required for optimum improvement after operation. Certainly not all valvotomy cases show immediate improvement. Burwell and Ramsay[9] point out that, although mitral-valve surgery can be performed during pregnancy, it is at the expense of an added risk, and advise that it should be reserved for those women who cannot continue pregnancy without severe hazard and in whom for some reason termination is not acceptable. Mitral surgery is best done in the non-pregnant patient.

Results. Wood,[10] in 150 cases, reports the outcome of valvotomy as excellent in 30%, good in 40% fair in 15% and poor in 9%, with a mortality of 6%. He states that 5% of the cases re-stenosed within 3 years of the operation. Brock[11] reports 10 cases in pregnancy—all 'successful' (there was 1 foetal death *in utero*). Mendelson[5] reports 16 cases in whom valvotomy was performed before pregnancy and who went through pregnancy 'without cardiac difficulty'. He also reports 40 cases who underwent valvotomy during pregnancy between the 2nd and the 36th week. All but 2 survived. He is of the opinion that pregnancy does not increase the operative mortality of valvotomy. The danger of premature labour following valvotomy is not significant (one of our 2 cases in Cape Town aborted). Pardee, in discussing Mendelson's paper, said that valvotomy had a mortality rate of about 5% in non-pregnant women and possibly more in pregnant women. He thinks the operation should not be performed after the 5th month because post-operative reaction is sometimes severe and lasts for 4-6 weeks.

A case illustrating the value of mitral valvotomy as an emergency procedure late in pregnancy is described in the Clinical Report for 1954 of the Coombe Lying-in Hospital, Dublin. A multiparous patient aged 35 was in weak labour and in heart failure. Her condition deteriorated despite treatment and valvotomy was performed. Ten hours after her return to the ward she was delivered normally of a living infant weighing 8 lb. 4 oz. The patient was discharged from hospital about 4 weeks later.

The Criteria for Valvotomy are given by Wood[10] as follows:

1. The patient must have an effort intolerance of grade 3 or 4.
2. The best results are obtained in typical mitral stenosis, preferably in the young patient. It should be uncomplicated by mitral incompetence or by severe aortic-valve disease.
3. Pulmonary hypertension or pulmonary venous congestion are no bar to the operation.
4. Sinus arrhythmia or auricular fibrillation are no bar to the operation.
5. Right ventricular failure or gross cardiac enlargement contra-indicate the operation.

Valvotomy was performed twice in the Cape Town series (1·07%) (both booked cases in 1953). In the first case the pregnancy was unsuspected at the time of the operation. She was in grade 2 before the operation and in grade 1 after it. The second case was in grade 4 before operation and in grade 4 at the time of abortion after operation. I do not know whether or not she improved subsequently.

TABLE V. MITRAL VALVOTOMY (2 CASES=1·07%)

Age	*31 Years*	*22 Years*
Previous pregnancies (over 28 weeks)	6	0
Previous pregnancies (under 28 weeks)	0	0
Maturity at operation	8 weeks	?
Maturity on delivery	40 weeks	22 weeks
Delivery	spontaneous	abortion
Child	alive	—

Modes of Delivery

In Table VI are indicated the different modes of delivery in the Cape Town series. The forceps rate in cardiac cases was 5·6% and the Caesarean-section rate 3·9%. It will be seen that the cardiac forceps rate was slightly greater than the over-all forceps rate, while the cardiac section rate was a good deal lower than the over-all section rate.

TABLE VI. MODE OF DELIVERY IN THE CARDIAC CASES

Year	*Normal Vertex*	*Breech*	*Forceps*	*Caesarean Section*
1952	53	—	2	2
1953	44	—	1	2
1954	59	4	7	3
Total	156	4	10	7
Percentage	90·3%		5·6%	3·9%

TABLE VIA. FORCEPS AND CAESAREAN-SECTION RATES

1952-54	*Forceps*	*Caesarean Section*
Cardiac Cases	5·6%	3·9%
All Cases	4·9%	6·0%

In Table VII forceps and Caesarean-section rates in the Cape Town series are compared with those of

TABLE VII. COMPARISON OF FORCEPS AND CAESAREAN-SECTION RATES AT QUEEN CHARLOTTE'S AND CAPE TOWN

Hospital	*Forceps Rate*		*Caesarean Rate*	
	Cardiac	*All cases*	*Cardiac*	*All cases*
Queen Charlotte's, 1947-50	19·3	8·1	4·0	2·5
Cape Town, 1952-54	5·6	4·9	3·9	6·0

Queen Charlotte's Hospital The figures indicate that in 'all cases' they apply forceps nearly twice as often as we do, whereas we perform Caesarean section about twice as often as they do. In the cardiac cases Queen Charlotte's apply forceps more than 3 times as often as we do in Cape Town, whereas their Caesarean section rate for cardiac patients is virtually the same as that

TABLE VIII. CAESAREAN SECTIONS

Indications	*No. of Cases*
Uterine Inertia	1
Pre-eclamptic Toxaemia	1
Disproportion	3
Primiparous Breech	1
? Diffuse Aortic Disease	1
Total	7

of ours. From a study of the Cape Town maternal deaths I doubt whether any one of these could have been prevented by forceps delivery—one patient died a few minutes after a forceps delivery. Table VIII gives the different indications for Caesarean section in the Cape Town series.

RESULTS

Maternal Deaths

There were 4 maternal deaths in cardiac cases. Table IX shows a fall in the mortality rate during the 3 years

TABLE IX. MATERNAL DEATHS IN CARDIAC CASES AND 'ALL CASES'

Year	*Maternal Deaths (Cardiac)*	*Total Cardiac Cases*	*% Mortality for Cardiac Cases*	*% Mortality for 'all Cases'*
1952	2	57	3·5	0·41
1953	1	51	2·0	0·30
1954	1	79	1·3	0·25
Total	4	187	2·1	0·32

for cardiac cases as well as for 'all cases'. The mean mortality rate for the 3 years was 2·1% for the cardiac cases, which is 7 times higher than the death rate for 'all cases'. In Table X the cardiac deaths in relation to

TABLE X. MATERNAL DEATHS IN CARDIAC CASES IN RELATION TO TOTAL MATERNAL DEATHS

Year	*Maternal Deaths (Cardiac)*	*Total Maternal Deaths*	*Percentage*
1952	2	28	7·1
1953	1	22	4·5
1954	1	19	5·3
Total	4	69	5·8

all maternal deaths is indicated. The mean percentage is 5·8. In England, according to the figures given by the Ministry of Health, heart disease accounted for 5·1% of maternal deaths and was 6th on the list of causes in 1935. In 1949 the figure was 11·4% and heart disease was third on their list. In Table XI I have compared the percentage of cardiac deaths with those of a few

TABLE XI. DEATHS IN CARDIAC CASES IN RELATION TO TOTAL MATERNAL DEATHS—DIFFERENT HOSPITALS COMPARED

Hospital	*Years*	*Total Maternal Deaths*	*Cardiac Deaths as Percentage of Total Deaths*
Queen Charlotte's, London	1947-50	12	0·0
National Maternity, Dublin	1949-52 +1954	53	3·8
Rotunda, Dublin	1949+ 1951-54	41	7·3
Teaching Hospitals Units, Cape Town	1952-54	70	5·8

other hospitals. Table XII gives the cause of all maternal deaths in Cape Town in the 3 years 1952-54. Toxaemia

TABLE XII. CAUSES OF MATERNAL DEATHS, 1952-54

Causes	*No. of Maternal Deaths*	*Percentage of Total Deaths*
Pre-eclamptic Toxaemia and Eclampsia	15	21·7
Postpartum Haemorrhage	14	20·3
Ruptured Uterus	5	7·2
Heart Disease	4	5·8
Shock Following Obstetric Operations	4	5·8
Accidental Haemorrhage	4	5·8
Cerebral Haemorrhage	3	4·3
Pyelonephritis	3	4·3
Placenta Praevia	2	3·2
Tuberculosis (Pulmonary, Meningeal, Miliary)	2	3·2
Acute Nephritis	1	1·4
Bilateral Hydronephrosis	1	1·4
Blood-Transfusion Reaction	1	1·4
Hyperemesis Gravidarum	1	1·4
Pulmonary Embolism	1	1·4
Acute Pulmonary Oedema	1	1·4
Acute Yellow Atrophy of Liver	1	1·4
Infective Hepatitis and Cholaemia	1	1·4
Malignant Hypertension	1	1·4
Subdural Haematoma	1	1·4
Idiopathic Thrombocytopaenic Purpura	1	1·4
Breast Carcinoma with Secondaries	1	1·4
Unknown	1	1·4
Total	69	99·8

heads the list, while heart disease occupies 4th place with 2 others. Table XIII, concerning 6 British teaching

TABLE XIII. CAUSES OF MATERNAL MORTALITY IN BOOKED CASES IN SIX BRITISH TEACHING MATERNITY HOSPITALS,* 1946 (*From D. J. MacRae*[2])

Causes	*No. of Maternal Deaths*	*Percentage of Total Deaths*
Heart Disease	11	35·5
Obstetric Complications (including Haemorrhage and Shock)	9	29·0
Toxaemia of Pregnancy	6	19·3
Anaesthesia	2	6·5
Other Conditions	2	6·5
Embolism	1	3·2
Pulmonary Infection (including Tuberculous)	0	0·0
Sepsis	0	0·0
Total	31	100·0

* Simpson Memorial, Edinburgh; St. Mary's, Manchester; Glasgow Royal Maternity and Women's; Queen Charlotte's, London; Birmingham Maternity; Princess Mary, Newcastle.

maternity hospitals for 1946, is taken from MacRae's paper and shows heart disease at the top of the list. Table XIV I have completed myself from records

TABLE XIV. CAUSES OF MATERNAL DEATHS IN FOUR TEACHING HOSPITALS * IN DUBLIN AND LONDON

Causes	*No. of Maternal Deaths*	*Percentage of Total Deaths*
Accidental Haemorrhage	14	11·8
Pre-eclamptic Toxaemia+Eclampsia	13	10·9
Heart Disease	9	7·6
Ruptured Uterus	9	7·6
Postpartum Haemorrhage	8	6·7
Pulmonary Embolism	8	6·7
Tuberculosis (Lungs, Mesenteric Glands)	5	4·2
Subarachnoid Haemorrhage	4	3·4
Placenta Praevia	3	2·5
Acute Yellow Atrophy of Liver	3	2·5
Post-operative Collapse	3	2·5
Puerperal Sepsis	2	1·7
Suppurative Pyelonephritis	2	1·7
Amniotic Embolism	2	1·7
Anaesthesia	2	1·7
Pneumonia	2	1·7
Renal Failure	2	1·7
Carcinoma of Stomach	2	1·7
Carcinoma of Lung	2	1·7
Other Conditions—1 each (including Malignant and Essential Hypertension and Cerebral Thrombosis)	24	24×0·8
Total	119	99·2

* National Maternity, Dublin (1949-52+1954); Rotunda, Dublin (1949+1951-54); Coombe, Dublin (1950-51+1954); Queen Charlotte's, London (1947-50).

from Dublin and London. Here, accidental haemorrhage is ahead, with toxaemia a close second and heart disease sharing third place with ruptured uterus.

The 4 maternal deaths in the Cape Town series are analysed in Table XV. It will be noticed that there was only 1 non-booked case. The mortality for the non-booked cases was therefore 2·7% as compared with 2% for the booked cases. All the patients were relatively young—30 and under. One patient belonged to the functional grade 1. Perhaps the most interesting feature is that 3 out of the 4 deaths occurred after delivery.

I have studied these 4 cases in some detail in order to determine whether any of them could possibly have been prevented. The first case had no adequate antenatal care. She had been dyspnoeic since the 5th month of pregnancy. She was admitted as an emergency in labour, the baby being born 5 minutes later. The child weighed 3 lb. 4 oz., so that very likely she was not 36 weeks pregnant as indicated in the maternity report. Good antenatal care may have prevented this death.

The second case had been in the medical wards of Groote Schuur Hospital with a diagnosis of early congestive cardiac failure about 6 months before she died. When admitted again in March 1952 she was found to be about 26 weeks pregnant. Therapeutic abortion was considered at that time but it was decided to allow her to go on with her pregnancy. She discharged herself after a stay of 6 weeks in hospital and was readmitted in labour and heart failure 5 weeks later. Now, I do not think a patient of functional grade 3 should leave hospital until after delivery, no matter the degree of improvement, and I am of the opinion that this death too may have have been prevented had she remained in hospital.

The third case was a grade-1 cardiac complicated by mild pre-eclamptic toxaemia—blood pressure 150/100 mm. Hg, some oedema but no albumen. She was delivered with forceps of a 5 lb. 10 oz. baby because o- delay in the 2nd stage (? transverse arrest) and the plaf centa was manually removed. She died suddenly during the repair of the episiotomy. The inquest report gives the main cause of death as 'acute neurogenic circulatory failure' with the rheumatic heart as a possible contributory factor. It would seem then that the cardiac condition was not the primary cause for this fatality.

The fourth case was admitted to the medical wards when she was about 18–20 weeks pregnant. There had been dyspnoea on effort for 2 years and 2 bouts of haemoptysis had occurred. She was discharged after about 7 weeks and attended the antenatal clinic 4 times in 10 weeks at intervals of 3–4 weeks. At her last visit she was in failure and she died the next day—undelivered. This patient too should never have left hospital and possibly her death could have been prevented.

Perhaps then one may be so bold as to suggest that with stricter antenatal supervision some of these deaths may have been avoided—possibly 3 of them. The

TABLE XV. MATERNAL DEATHS (4 CASES=2·1%)

Year	*Age, etc.*	*Previous Pregnancies* *	*Heart Lesion and Functional Grade*	*Maturity*	*Method of Delivery*	*Time of Death*
1952 ..	30 NB	4	Mitral Stenosis 4†	36	Spont.	Postpartum, 16 hours.
1952 ..	24 B	3	Nutritional 3†	40	Spont.	Postpartum, 5 days
1953 ..	28 B	0	Mitral Stenosis 1†	36	Forceps	Toxaemia 35 weeks. Postpartum during repair of episiotomy.
1954 ..	23 B	1	Mitral Stenosis + Aortic Regurgitation 3	32	Undel.	Antepartum.

* All more than 28 weeks. † Both on admission and at time of delivery. B=Booked. NB=Non-booked. Spont.=Spontaneous. Undel.=Undelivered.

fourth death may not have been preventable but then it may not have been of cardiac origin.

TABLE XVI. NATURAL HISTORY OF MITRAL STENOSIS (*from P. Wood*[10])

Average Age of Onset	12 years.
Latent Interval	19 years.
Average Age on Onset of Symptoms.	31 years.
Duration of Mild Symptoms ..	2·7 years (variation 0-17 years).
Duration of Moderate Symptoms.	4·6 years (variation 0-18 years).
Duration of Severe Symptoms	2 years (variation 0·5-4 years).
Average Age at Death	40 years.

Table XVI has been adapted from a paper by Wood,[10] the eminent British cardiologist. It gives one some idea of the trend of events one may expect in a case of mitral stenosis.

Functional Grades

Table XVII gives the different functional grades of the pregnant cardiac cases. Those not clearly graded

TABLE XVII. FUNCTIONAL GRADES

	On Admission				*At Delivery*			
	1	2	3	4	1	2	3	4
1952 ..	32	14	4	2	34	14	3	1
1953 ..	29	9	5	8	34	10	5	2
1954 ..	25	29	4	10	33	26	6	2
Total ..	86	52	13	20	101	50	14	5
%.. ..	50·3	30·4	7·6	11·6	59·4	29·4	8·2	2·9

have been omitted. There does appear a degree of 'shift to the left' showing that many cases improved between admission and delivery. In Table XVIII I have

TABLE XVIII. FUNCTIONAL GRADES IN RELATION TO AGE (ON ADMISSION)

Grade	*Under 20*		*20-24*		*25-29*		*30-35*		*35 and Over*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
1 ..	15	88·2	32	55·2	15	33·3	14	51·9	10	40·0
2 ..	1	5·9	16	27·6	21	46·7	8	29·6	8	32·0
3 ..	1	5·9	5	8·6	5	11·1	0	0·0	1	4·0
4 ..	0	0·0	5	8·6	4	8·9	5	18·5	6	24·0
Total ..	17	100·0	58	100·0	45	100·0	27	100·0	25	100·0

classified the functional grades into their different age-groups. As one might expect, there was a high percentage of grade 1 in the under-20 group and a relatively high percentage of grade 4 in the over-35 group. For the rest this table does not reveal any particularly interesting feature. It is odd, too, that in Table XVIIIa

TABLE XVIIIA. FUNCTIONAL GRADES IN RELATION TO AGE (ON ADMISSION)

Grade	*Under 30*		*Over 30*	
	No.	*%*	*No.*	*%*
1 and 2	100	83·3	40	76·9
3 and 4	20	16·7	12	23·1

there does not seem to be any significant difference between the under-30 and the over-30 age-groups. Table XIX shows that for patients in the functional grades 3 and 4 the case mortality rate is 13 times higher than for those in grades 1 and 2.

TABLE XIX. MATERNAL DEATHS IN RELATION TO FUNCTIONAL GRADE

Functional Grades	*No. of Cases*	*No. of Maternal Deaths*	*Percentage Maternal Case-mortality*
1 and 2	138	1	0·7
3 and 4	33	3	9·1

There was 1 case of subacute bacterial endocarditis (in 1954) a woman aged 34 who had been pregnant 6 times before (4 under 28 weeks, 2 over 28 weeks.) The heart lesion was mitral stenosis + aortic regurgitation, and the functional grade was 2 on admission and 1 on delivery. The mother was spontaneously delivered of twins, both with breech presentation. The mother and both infants survived.

The stillbirth rate for the cardiac cases is about the same as for all other cases (Table XX.) The over-all

TABLE XX. STILLBIRTHS AND NEONATAL DEATHS IN THE CARDIAC CASES

Year	*No. of Stillbirths*	*No. of Neonatal Deaths*
1952..	2	2
1953..	1	0
1954..	3	2
Total	6 (3·2%)	4 (2·1%)
All Cases	(3·8%)	

neonatal death-rate is not available, but I do not think that the figure for the cardiac cases is significantly higher.

The Effect of Pregnancy on Rheumatic Heart Disease

In 1933 Gilchrist and Murray-Lyon[12] reported that the age of death of nulliparous and parous women with heart disease was the same. Unless the worse affected patients remained single this suggests that pregnancy does not influence the course of the disease. Hamilton[8] however, pointed out in 1954 that those women who marry constitute a selected group, because the unhandicapped are more likely to get married than those who are invalided.

Several authors reach the conclusion that, apart from the small number of women who die in pregnancy or the early puerperium, there is no evidence that life is shortened by childbearing, even when the heart disease is severe;[13-15] but Hamilton[8] maintains that proof is still lacking that pregnancy *per se*, does not shorten life even when deaths occuring during pregnancy and the puerperium are excluded.

Mendelson[5] states that statistics have indicated that the average age at death of men, nulliparous women and parous women with rheumatic heart disease is identical. He holds that there is no evidence to indicate that childbearing shortens life in rheumatic heart-disease, provided that the patient survives the pregnancy. It should not be forgetten that rheumatic heart disease takes its toll of non-pregnant patients. Hamilton and Thomson[16] found that the yearly death rate among such patients between 20 and 40 varied between 2·0 and 6·7% according to the severity of the disease.

The Question of Therapeutic Abortion and Valvotomy

The approach to these two procedures in the pregnant cardiac patient is influenced by the following considerations:

1. If pregnancy is to be terminated at all it must be done before the 20th week. If the operation is done later the risks are greater than those of going through with the pregnancy and delivery.

2. The work the heart has to do is significantly increased after the 20th week of pregnancy. Therefore, when the heart has failed before, possibly in a previous pregnancy, it is certainly very likely to do so again. If the patient is already in failure the added load of pregnancy is surely formidable.

3. Valvotomy is probably best done after termination or delivery but may be done during pregnancy if termination is not desirable—when, for instance, the baby is badly wanted, or in late pregnancy when cardiac failure persists in spite of adequate medical treatment.

I find it extremely difficult to determine the correct place of therapeutic abortion in the pregnant cardiac patient. The evidence is conflicting. The following comments are submitted on the figures for various hospitals which are given in Table XXI.

1. The Queen Charlotte's results can hardly be improved upon. They had no deaths and terminated 3·1% of their cases.

2. The results of the National Maternity Hospital, Dublin, are excellent. Their death rate was 0·5% but not a single case was terminated. Their series of cases was greater than that of Queen Charlotte's, and their material was significantly different in that 16·3% of their cases were non-booked as opposed to 0·4% of those of Queen Charlotte's.

3. The Cape Town maternal death rate was 2·1% and 2·1% of the cases were terminated. This death rate was thus the same as that of the Coombe Lying-in Hospital, Dublin (2·2%), where no case was terminated, but considerably higher than that of the National Maternity Hospital. The percentage of non-booked cases in Cape Town was approximately of the same order as that of the National Maternity, viz. 19·8% as compared with 16·3%, but only 1 out of our 4 maternal deaths occurred in a non-booked patient.

4. At University College Hospital, London, where the percentage of terminations was about 4 times as high as in Cape Town, their death rate was slightly higher than our own.

5. On analysing the reasons for therapeutic abortion in the 4 Cape Town cases, it would appear that in 3 of them the cardiac disease was not the indication for this procedure.

It would seem then that the place for therapeutic abortion in the pregnant cardiac patient must be small, if it exists at all. The results shown in Table XXI do not reflect the full impact of the use of valvotomy and it is possible that this operation may nearly eliminate any place that therapeutic abortion may still occupy. There are, however, certain authorities, such as Hamilton[8] and Burwell and Ramsay[9], who believe that valvotomy is not advisable during pregnancy. Moreover, there will always be some cases which from a purely medical or sugical point of view are not suitable for valvotomy. There may therefore always be a small place, albeit very small, for therapeutic abortion in these cases.

CONCLUSIONS

In reaching my conclusions I have been influenced to a certain extent by 'feeling', as opposed to cool reasoning.

1. If there is a history of previous congestive heart failure, either with or apart from a pregnancy, the present pregnancy must be terminated in the early weeks. If the case is suitable for valvotomy, this can be carried out later, and in these circumstances the patient need not be sterilized at the time of the termination. If she is definitely not suitable for valvotomy she should be sterilized.

2. Any patient in grade 4 in the early weeks of pregnancy should have her pregnancy terminated as soon as she is out of failure, provided this happens before the end of the 20th week. If she is not suitable for valvotomy, she should be sterilized. If she is suitable for valvotomy, sterilization need not be carried out and valvotomy should be performed later. Should such a patient remain in grade 4 in spite of good medical treatment valvotomy should be considered as a primary procedure.

3. Auricular fibrillation in the early months calls for therapeutic abortion.

4. Should the patient deteriorate to grade 4 after the 20th week of pregnancy, the failure must be treated medically. If she improves the pregnancy should be allowed to continue, and valvotomy should be considered if she has not yet reached the peak-period of

TABLE XXI. SOME OTHER HOSPITAL FIGURES

Hospital	*Cardiac Cases*	*Non-booked Cases*	*Termination of Pregnancy*	*Maternal Deaths*
National Maternity, Dublin, 1949 to 1952 and 1954 (5 years)	399	65 (16·3%)	0	2 (0·50%)
Coombe Lying-in, Dublin, 1950 to 1954 (5 years)	137	?	0	3 (2·2%)
Rotunda, Dublin, 1949 and 1951 (5 years)—1954	171	?	?	3 (1·6%)
Queen Charlotte's, London, 1947 to 1950 (4 years)	228	1 (0·4%)	7 (3·1%)	0
Guy's, London, 1949 to 1950 (2 years)	48	?	0	0
St. Thomas', London, 1946 to 1950 (5 years)	68	?	4 (5·9%)	0
U.C.H., London, 1946 to 1950 (5 years)	146	?	13 (8·9%)	4 (2·7%)
Kings, London, 1949 to 1950 (2 years)	34	2 (5·9%)	2 (5·9%)	1 (2·9%)
Cape Town Maternity Teaching Hospitals, 1952 to 1954 (3 years) ..	187	37 (19·8%)	4 (2·1%)	4 (2·1%)

cardiac load. In the absence of improvement valvotomy is likewise contemplated.

SUMMARY

A series of 187 consecutive cases of heart disease in pregnancy under the care of the Teaching Maternity Units of the University of Cape Town are reviewed. The management of this problem is discussed and the Cape Town figures are compared with those of British and Irish maternity hospitals. Special consideration is given to the question of valvotomy and therapeutic abortion in the treatment of these cases. It is concluded that valvotomy is best performed after delivery and, while therapeutic abortion has a place in the management of the pregnant cardiac patient, it is a very small one.

I should like to acknowledge my thanks to Prof. James T. Louw for his encouragement in the preparation of this paper and his help in the collection of the material. The Teaching Hospitals Board, Cape Town, is thanked for its financial assistance given towards the compilation of the valuable hospital's records that have been available to me.

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A CASE OF PITYRIASIS RUBRA PILARIS

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When we consider the wide incidence of vitamin-deficiency diseases among Africans it is surpirsing how infrequently in the Bantu of the Witwatersrand we meet with cases of skin disease caused by hypovitaminosis A. The following case may therefore be of interest. Moreover, it suggests as an explanation of this rarity that lack of vitamin A is probably only one of several factors in the pathogenesis of these skin lesions.

CASE REPORT

A Xosa male aged 19 years was admitted to Baragwanath Hospital on 11 November 1955, complaining of a skin condition which had lasted for 4 months. He was a farm hand and had been engaged on mealie planting for 6 months before coming to hospital. Neither his parents nor 4 sisters and 1 brother were similarly afflicted nor, as far as he was aware, had they ever suffered from such a skin disease. We should have liked to confirm this by personal observation and interview, but these relatives live in the Cape Province and throughout the 9 months of his stay in hospital he was never visited by any of them.

He was a well-built adult male, apparently in a good nutritional state. The systemic examination revealed nothing abnormal but his skin showed an extensive eruption of discrete, acuminate spicules and keratotic papules. These covered the whole of his body with the exception of the penis and scrotum, palms and soles, and the feet from about 2 inches above the ankles downwards. The skin over the palms and soles was dry and slightly excoriated. The acuminate spicules were particularly prominent above the wrists, and over the dorsum of the hands with the exception of small, transverse bands across the distal ends of the metacarpals and the interphalangeal joints. In some areas of the skin the papules fused together to form conglomerate, keratotic plaques. This was a prominent feature over the nose, forehead, ears, cheeks and temples, the back of the neck, anterior axillary lines and upper sacral region (Figs. 1 and 2).

At the time of admission a purulent conjunctivitis was present; otherwise the eyes appeared healthy, no Bitot spots being observed. There were no haemorrhages in the skin or calves; the tongue, gums and teeth were healthy and none of the clinical signs of pellagra or scurvy were noted.

A diagnosis of vitamin-A deficiency was made.

RESPONSE TO TREATMENT

The patient was put on full ward-diet and given 300,000 units of vitamin A a day intramuscularly. There followed dramatic improvement of the coarser, conglomerate lesions after 2½ weeks under this regimen (Fig. 3), but a certain dryness and scaling persisted, which were more marked at the corners of the eyes and mouth, the cheeks and the neck. The acuminate spicules remained, particularly over the dorsum of the hands (Fig. 4), and also over the abdomen and back, where they intermittently waxed and waned in size.

Changes in the treatment were rung by giving oral and parenteral vitamin A alternately; and the oral form was varied by administering the vitamin as an oily preparation for a period of weeks, followed by weeks of an aqueous dispersion in the form

Fig. 1.

of Arovit. We were testing the hypothesis that a watery emulsion was more easily absorbed.[1–4] These changes produced no clinically detectable differences. This agrees with the findings of Danielson *et al.*[5] and McCoord *et al.*,[6] who concluded that an aqueous dispersion shows superior results only in cases of cystic fibrosis of the pancreas. The one method we found effective in our case of clearing the spicules and roughness of the skin further (though not completely) was the use of strong keratolytic ointments. Conversely, during a 3 weeks' period in which all treatment was designedly stopped the patient's condition retrogressed noticeably, showing a recurrence of keratolytic papules and scaly lesions on the face, trunk, extremities, hands and feet. Improvement again set in on resumption of treatment but never advanced far enough to clear up the hard core of residual signs. Yet it must be emphasized that the coarser conglomerate lesions never recurred. How far this degree of progress could have been maintained with a longer period of intermission of treatment is a moot point.

RESULTS OF INVESTIGATIONS

The blood picture, taken at the commencement of treatment, was within normal limits. The haemoglobin varied between 13·6 and 16·9 g. per 100 ml., the leucocyte count between 7,900 and 12,100 per c.mm., PCV between 43 and 50% and MCH between 32 and 34%. The ESR was 20 mm./hour and the prothrombin index between 84 and 100%.

Serum Chemistry. The electrophoretic pattern (g. per 100 ml.) was as follows: Total protein 6·8, (albumin 3·04, alpha 1 globulin 0·44, alpha 2 globulin 0·65, beta 1 globulin 0·68, gamma 1 globulin 0·42, gamma 2 globulin 1·57). Serum calcium 4·9 mEq. per litre; serum protein-bound iodine 4·5 microg.%.

Liver-Function Tests. Serum bilirubin was 0·3 mg.%; the alkaline phosphatase test 10·1 units; thymol turbidity 6·0 units; thymol flocculation ++++; colloidal red ++++; Takata Ara reaction (Ucko's modification) +. The oral hippuric-acid synthesis test showed 114% of average function, and the intravenous test 116%.

A fractional test-meal showed a normal curve after the test meal and after histamine injection.

Stools. No animal parasites or ova (including E. histolytica) were detected.

Glucose Tolerance Curve. The fasting glucose level was 78 mg.% rising to 151 mg.% ½ hour after 50 g. of glucose was administered orally, and dropping to 100 mg., 89 mg. and 89 mg.% after 1 hour, 1½ hours and 2½ hours.

Fat Balance Test. This test, after a fat intake of 100 g. per day showed 97% absorption.

Vitamin-A Absorption Tests. These were done on 4 different occasions by giving 300,000 units of vitamin A orally in aqueous dispersion and taking blood specimens 3 hours and 5 hours later. In each case the fasting level was first ascertained by withholding food for 12 hours and taking a fasting blood-sample before administering the vitamin A. The results are shown in Table I, which also give the results of a similar investigation on one occasion in a normal African control of the same age.

TABLE I. VITAMIN A LEVELS

1956	*Fasting level*	*After 3 hours*	*After 5 hours*
12 January ..	43	83	65
9 February ..	3	5	9
6 July	29	202	124
10 July	84	192	79
5 July	5	—	—
Control	9	31	118

A liver biopsy was performed on 12 July 1956. No histological abnormality was observed. Biochemical tests for vitamin A

Fig. 2. (To view, turn top of plate to the right).

Figs. 3 and 4.

showed a content of 19,880 international units per g. of liver tissue.

X-ray. Radiographs of the lungs and bony skeleton showed no abnormalities. A barium meal and enema indicated normal motility and pattern in the gastro-intestinal tract.

Histology of Skin Lesions. Several biopsies were performed. They showed slight hyperkeratosis, with some elongation of the rete ridges and broadening of the papillae. There was a mild diffuse and focal infiltration of the sub-epithelial tissues by lymphocytes and histiocytes. The follicular plugging in the form of an inverted pear which Loewenthal[7] describes in his classic article on cutaneous manifestations of vitamin-A deficiency, and which Brunsting and Sheard[8] state are also present in pityriasis rubra pilaris, was not seen in these sections.

DISCUSSION

It seems certain on clinical grounds that this was a case of pityriasis rubra pilaris. Absorption from the gastro-intestinal tract was adequate, as is evidenced by the fact that the haematological findings, the glucose-tolerance test and the fat-balance studies were all within normal limits. No intestinal infestation was found. The vitamin-A tolerance test, however, which will be discussed later, showed variable results.

An examination of the eyes, made, however, 14 days after the commencement of treatment, provided no evidence of night blindness or other signs of vitamin-A deficiency. Authorities are not agreed whether any reliable correlation exists between vitamin-A levels and dark-adaptation.[9,10]

In animal experiments thyroid has been found to be a factor in growth and in liver storage of vitamin A[11-14] In addition Shaw *et al.*[15] report a case in which hypothyroidism was associated with vitamin-A deficiency as a factor in hyperkeratosis. In our case the serum protein-bound iodine was within normal limits.

Leitner[15] published an interesting paper in which he described 8 cases in the same family suffering from pityriasis rubra pilaris. All were the descendants of a single female progenitor. The author postulates some hereditary and intrinsic disturbance of the autonomic nervous system in this disease. He suggests that vitamin A may be mobilized from its reserves by the autonomic nervous system as the sympathetic-adrenal system mobilizes sugar. His cases showed great impairment of liver function.

It is questionable, however, how far we can attribute deranged liver-function to our case. Although several of the liver tests, such as the thymol turbidity, thymol flocculation and colloidal-red tests, were abnormal by European standards, the serum proteins were in a ratio of 1:1, and the gamma globulin was increased, yet these findings are so frequently encountered in the Bantu that no significance can be attached to them. High values for these liver-function tests have not uncommonly been reported in association with an increased proportion of gamma globulin as against albumin.[19] According to Martin [20] only one liver-function test, the hippuric-acid synthesis test, is regarded as a reliable measure of the function of the hepatic parenchyma. All the other common tests are concerned with reticulo-endothelial rather than with hepatic activity. The hippuric-acid tests in our case, both intravenous and oral, showed normal liver function, as well as good absorption.

The crucial vitamin-A absorption tests showed wide variation of the fasting level, and the response to oral vitamin A was similarly variable (Table I). *On two occasions the curve was flat.* This, combined with normal fat absorption and the remarkably high store of vitamin A in the liver found on biopsy, would indicate an increased uptake and storage of the vitamin by the liver. This explains the need for continuous administration of the vitamin and the absence of signs of toxicity in spite of prolonged treatment with large doses. This freedom from toxic symptoms is very important in view of the proved necessity of continuous treatment, though it does not remove the need for repeated checks as long as vitamin A is administered.

Numerous authorities have emphasized that there are other factors in the aetiology of pityriasis rubra pilaris besides deficiency of vitamin A, however produced, whether by inadequate diet, lack of absorption from the gastro-intestinal tract, or poor liver-function in relation to vitamin A or its precursor, carotene.[17,18,8] The present investigation confirms this finding.

SUMMARY

A case of pityriasis rubra pilaris is described and the clinical, histological and laboratory findings are reported. The progress under therapy and the significance of the

abnormal response to large doses of vitamin A are discussed.

Our thanks are due to Dr. B. J. Becker and Dr. J. Higginson for the histological investigations, Dr. I. Bersohn for the liver-function tests, Dr. R. Cassel for the blood tests, and Mrs. M. H. Meijer for the vitamin-A estimations. We should also like to thank Dr. Fay Segal for the fat-balance study, and Drs. S. Wayburne and E. Kahn for the photographs.

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RANDOM THOUGHTS

RURAL G.P.

I attended a Branch Meeting of the Association the other night and was considerably perturbed by the line taken in the discussion. I suppose it is natural for the specialist and the general practitioner to take opposite sides in any debate on the suggested Rules for Specialists, but it was the line of cleavage which was disturbing on this occasion.

The discussion descended almost into a wrangle, in the course of which such expressions as 'glorified GPs' were mixed with statements of the obvious such as 'Many GPs have bigger incomes than many specialists'—a purely rhetorical retort which in itself means nothing, but which indicates the economic line of thought of its utterer. One specialist went so far as to say that if he were prevented from domiciliary visiting he would withdraw his name from the specialist register. He also stated that he had that day treated 3 patients for nothing because they could not afford '*my fees*'. He did not appear to understand that these same patients might well be able to afford *a GPs fees* and have the advantage of being treated as part of a family group and not as an individual with no past, little environment and an unknown future.

One was almost tempted into remarking, 'If the cap fits', when a statement was made that the proposed rules were 'an intolerable insult to an honourable body of men'. A person with a clear conscience need not get so hot under the collar about rules which are suggested to guide the man with the not-so-clear ethical understanding! It is only the sheep which is concerned to stray outside that notices the fence round the hundred-acre field. The others are content to remain within the boundaries, which are thus of little importance to them.

Fortunately the point of view of the patient was not completely lost in the course of the discussion, though the guns fired on his behalf were not of such heavy calibre as those which, apparently, tended to consider him of little importance.

It is frequently suggested that the conflict between G.P. and specialist is purely one of economics. Sad if true! but I for one cannot believe it to be the whole truth. I think it regretable that so many specialists have arrived at their exalted positions without adequate experience of the conditions of general practice or, if they have so graduated, have largely forgotten the lessons which they should have learnt.

It is all very well to order radiological and pathological investigations *ad lib.*, which in a large number of cases will be negative, and follow these with a prescription for expensive proprietary medicines, when a little clinical acumen and a simple mixture will in many instances achieve the same results without added further unnecessary financial worry to the burden of an already harassed patient. But then, I suppose, a specialist must do something different and more impressive in order to earn his fee. I remember the days in England when a fee of five shillings for a consultation included the medicine and, surprising as it may seem, most of our patients got better.

Surely it is not only financial considerations which motivate the attitude of the GP to the specialist! After all, in the majority of cases, the specialist only sees the patient once or twice, though there are regrettable exceptions to this. The cash which changes hands on these occasions is unlikely to accrue to the GP in any case. A more important point is that the GP is so often left out of a picture of which he should be an integral part. At the same time the specialist is deprived of the help which he might have received from the general picture which the GP could give him. This is definitely to the detriment of the patient.

How many specialists have been left in the invidious position of the GP who, having been treating a patient for some time with apparent acceptance and, there having been no suggestion of a second opinion, is suddenly faced, usually at the end of a consultation, with the remark by the patient, 'By the way, Doctor, I saw Dr. So-and-So last week and he said . . . and gave me some tablets to take'? Rather difficult isn't it? I know all about the patients who are said to hide the fact that they have a family doctor, but these patients are in need of education. They should be made to realize that the liaison is in their own interests. In any case this type of patient is in the minority; most admit that they 'haven't thought of it that way' when the alternative is pointed out to them, and are most apologetic.

To illustrate another instance of incomplete team-work: A patient of mine saw a gynaecologist for a uterine condition. She had previously consulted him directly, and he wrote to me about her. Subsequently I sent her back to him for a further opinion. Very properly I again received a report, in which he stated that he had *given her* a prescription for various drugs, including thyroid tablets. In addition to her uterine condition the patient suffers from paroxysmal tachycardia of thyroid origin. How am I supposed to deal with that situation without letting the specialist down? Would it not have been better if he had intimated his suggestions and left the prescribing to me?

Before the war I was in practice in a city in England, and I always made a point of being present when my patients were seen by a consultant—we had no specialists in the South African sense. This is manifestly impossible when one is 30 miles from town, and a letter or telephone conversation has to suffice, but I am sure the other method led to a better relationship between the consultants and myself and was, even more certainly, of considerable benefit to the patient.

Now that we have first-class and second-class doctors as defined by statute, it is illogical that regulations should be promulgated for the control of one class only. G.Ps. are precluded from claiming any special ability or interest even among colleagues, no

matter what their experience, unless they have complied with the requirements for specialist registration. They are discouraged from doing even their own minor surgery. All this is presumably in the interests of the patient. Surely it is also in the interests of the patient that there should be rules for the guidance of specialists. I say 'guidance' advisedly because exceptions must always be allowed to all ethical rules. If it is claimed, as it is most vehemently, that the better type of specialist already conducts his practice along these ethical lines, why the objection to the codification of the rules? They will not worry the ethical specialist, and 'they are all honourable men'!

Finally, an experience I have shared with a friend of mine: He has attended a certain family for a number of years. The wife became pregnant after a long period of infertility, which he had been successful in treating. She goes to a specialist obstetrician for her antenatal care, of which fact my friend is only informed when he attends her for an intercurrent acute condition. Subsequently the obstetrician conducts a normal confinement and is very surprised when he is tackled on the subject at a chance meeting in the nursing home. But worse is to come. The mother is advised to take the child to a specialist paediatrician for vaccination and immunization and later for anti-polio inoculations. Shades of the family doctor and the consultant! Surely the former is capable of performing all these acts; and furthermore, if there should be any complication in the middle of the night, he will be expected to deal with it. And, just as surely, the consultant would have considered it beneath his dignity, to say the least of it, to give the injections.

It is a pity that there can be no register of specialist general practitioners which might serve to put the GP back in his appropriate position *vis-a-vis* the specialists of other types as well as with the patient, who—it cannot be repeated too often—is the loser by the present unfortunate antipathies.

SOCIAL ASPECTS OF RUSSIAN MEDICINE*

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The structure of the Russian health services is monolithic. From the central point at Moscow to the most distant regions of the Union there appears to be a uniform pattern. The service gives the impression of efficiency, and it seems to have been supplied to the whole of the Russian continent rather like providing gas or electricity. The decision was taken early that the creation of health is no more than a technical exercise for which doctors and auxiliary workers are needed in great numbers. Today the visitor to Russia sees the fulfilment of this idea. The 81 medical institutes, separated from the universities, and the 650 middle medical schools, have worked at full pitch to produce the doctors and the feldshers whose four years of training qualify them for sanitary or veterinary work and for midwifery or nursing. Once again we hear the grand total—300,000 doctors (1 to 720 persons) and 800,000 auxiliaries. And we had no doubt of its truth. Rather did we soon wonder how this total could meet the lavish use.

Health Centres

The polyclinic, around which the Russian health services have been built, can fairly claim to be a health centre, though it is not identical with anything to be seen elsewhere. It is not unlike the 'Section 21' health centre envisaged by our own British Health Service Act. But there are many points of dissimilarity. The Russian polyclinic does a large part of the out-patient work of the British hospital system, using a type of specialist midway between the British G.P. and consultant. It exists in three forms—for children, adults and industrial workers. It lacks the family doctor in the sense understood in Britain of a physician to the whole family selected from several, available generally speaking in all circumstances. The Russian sector doctor, working a short day-shift, cannot be so freely available. There can hardly be any freedom of choice since the doctor appointed to a sector covers the whole population within it; the children and workers are cared for in different clinics. It is doubtful whether these fine distinctions mean anything to the ordinary Russian citizen. For him the Russian polyclinic does take the place fairly effectively of the British family doctor. Patients can expect continuous attendance except for emergencies dealt with by the emergency squad; they can 'phone to make appointments; and the people in the area of a polyclinic look upon it as a source of health and strength.

PREVENTIVE MEDICINE

There is a small army of doctors engaged in hygiene in the 19th-century sense. Moscow has given the order to scour clean the Russian landscape. The task is uphill, as in all under-developed countries with a defective environment and little understanding of the principles of health promotion, but the work of the medical sanitary inspectors, whose powers are considerable, is beginning to bear fruit.

Public-health doctors are engaged in large-scale operations to eliminate the major plagues, malaria, trachoma, tuberculosis and others. In Uzbekistan, for example, a gigantic scheme of malaria control employed 500 doctors, 1,500 medical auxiliaries and 4,000 voluntary workers. The Institute of Tuberculosis in Tashkent supervises the work of 30 X-ray plants and 12 mobile units. In 1954, 1 million out of 7 million people were radiographed. The service employs 550 tuberculosis officers and 980 auxiliary workers with 35 dispensaries. All students, collective farmers and workers in heavy industry are radiographed yearly. BCG vaccination is given at birth and at age 3, 7 and 10 years. Cattle are said to be seen monthly by veterinary feldshers and there has been a rigorous policy of skin testing and slaughtering since 1938. The application of preventive medical techniques, which can be seen in many other spheres of work, has been undertaken on a vast scale without any of the inhibitions which hold up the work in a free society. It is aided by a lavish provision of medical institutes, all closely related with central institutes in Moscow. Health education, within the general scheme of indoctrination with Soviet faith, is used widely and is having considerable effect.

'Specialists' in both children's and adult polyclinics seem to spend much time in preventive examination. These 'specialists' form a high proportion of the doctors in the polyclinics. (In a Moscow polyclinic there were 91 doctors, made up as follows: 19 sector G.P.s, 16 sanitarians, 10 dentists and 46 'specialists.') One Tashkent cotton-factory appeared to examine every worker annually, and those in dangerous trades twice yearly, using a team of doctors from its polyclinic. The City polyclinic No. 3 (one of 40 polyclinics) in Stalingrad used the same team method to examine all the workers of a section of the town twice yearly. The team was variously listed and seemed to have no exact form, consisting of 5 or more: e.g., a therapist, a surgeon, a gynaecologist, a neurologist, a dentist (or stomatologist), an ear, nose and throat surgeon. The work was conducted in the factory itself; facilities for X-ray and laboratory work were available, and about 50 persons were examined daily. One effect of this policy, it was said, was the relatively small numbers seeking consultations at the polyclinics.

The work of the general practitioner, or sector doctor, seemed also to have a preventive bias. He is expected to spend half of a 6-hour day at the clinic and half in visiting the section. When visiting, he is expected to see the chronics, to ask about people in the family or in other families in the neighbourhood who may be in need of medical care; and to give lectures to workers and the public in factories and apartment houses.

The most obvious deficiency in public health for the priority classes is the absence of care for the aged. But like other visitors

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†(Professor Brockington recently visited the U.S.S.R. to study Soviet medical practice.)

we were struck by the few aged people seen. Russia may have yet to experience the impact upon public health of an aging society. School children are examined annually by school doctors on the staff of the clinics—an effective link with active medical care—who also give part of their time to actual teaching in the classroom. On the other hand, in a country where the diet approximates more to that of under-developed countries, with an excess of carbohydrate, the absence of any general scheme of school feeding is a serious deficiency. The industrial worker appears to be under close medical supervision, but the rigorous system of work or starve may well introduce hazards into Russian industrial life which a more humane society would avoid. The widespread development of sanatoria, rest homes and other prophylactoria, which provides one of the most striking features of the Russian scene, must help to maintain the health of workers and children.

Maternal Welfare

The need for mothers to work, and the influence of the widespread use of nurseries for the young infant, call for more attention than we were able to give. Perhaps 'deprivation' of maternal care is of less significance when it is the general lot of all. The provision for mothers in childbirth seems to be of a high order. In a Tashkent district maternity home (400 beds, 7,000 births annually) every delivery was attended by both a doctor and a midwife. Such use of skilled time, however extravagant, was obviously designed to reduce risk to an inescapable minimum. The 75 women doctors and 280 feldsher midwives had time enough to spare for ante-natal work and for the teaching of physiological delivery, of which much was made, along Pavlovian lines. We were told that 98% of Tashkent mothers and about 82 or 83% of mothers in the rest of Uzbekistan were delivered in hospital.

Social Medicine

The whole of Soviet society is in a sense an exercise in social medicine. This is particularly noticeable in the services available through committees of citizens to deal with welfare and care and after-care, a widespread 'participation' by the people themselves in their own social problems. Stalingrad has 401 local committees of citizens—in streets, blocks of flats and other units. The street committees are responsible for sanitary matters, for taking steps to see that those in need of care get it, for work in connection with problem families and marital disharmony, and for following up school children. They act as a line of communication between consumer and supplier. Similarly trade-union committees are called in by magistrates to help in marriage rehabilitation, and committees of parents appear to be active in schools. Stalingrad has established committees in polyclinics to undertake practical health work of which the following examples were given: (1) an investigation of school meals in the area of the clinic; (2) collaboration in a scheme for preventing the introduction of poliomyelitis by traffic along the Volga; and (3) conducting a campaign to abolish flies. The oft-repeated statement 'we have no social problems' may mean no more than 'we try to deal with our social problems ourselves without establishing outside agencies and introducing specially trained workers.' But this is only an impression.

HEALTH OF THE PEOPLE

Lack of Statistics

It is impossible to speak definitely about the state of health of the Russian people. None of the usual indices of health are available upon which to make a true assessment. Statistics, other than percentages, are notoriously difficult to obtain in Russia. My experience differed little from that of the many other observers. There was a monotony of general information which often had little value. Figures were freely given for the number of doctors, clinics, hospitals and auxiliary workers, which, at their face value emphasise the expansion of Russian medical services. These seemed to be generally accurate. But statistics of the type to be found in Britain in the mass of official reports seem to be wholly lacking. No accurate return has been kept of the vast amount of material which must have accumulated during 35 years of the Russian experiment in applied science. The only actual figures which we received for population or mortality concerned the natural increase of the population (3-3½ million), the crude death rate (8·9) and the maternal mortality (0·08 post-natal).

No doubt 'security' laws played a part in this. But generally the vagueness seemed to be due to a lack of statistical studies. The art and science of medical statistics, even in its most elementary form, seem to be unknown in Russia. When information was sought at the ground level it was said to be higher up. Specific enquiries, if pursued, always led to Moscow; but when ultimately we saw the deputy head of the statistical bureau of the Ministry of Health in Moscow, we were told that the details could only be given locally, or were not available to the Ministry of Health.

Great improvements have taken place in the state of Russian health but they cannot be measured. Maternal and child mortality may now be no greater than our own. Improvements are likely to have been particularly marked in the nutritional field. Rickets, very common together with osteomalacia before the Revolution, is now rare in Uzbekistan, in contrast with the pandemic incidence in Turkey and Yugoslavia, and we were told, for example, that rickety pelves had become rare. The main lethal pandemic and epidemic infections have probably been reduced fairly near to the levels now seen in western Europe. Malaria appears to have been virtually abolished in Uzbekistan. The position of typhoid seems to be not unlike our own, and widespread inoculation, once practised, has been abandoned as no longer necessary. Venereal disease was said to have virtually disappeared. We had no means of checking this.

Social Problems

Finally, it was extremely difficult to gauge the magnitude of social problems. We heard of problem families. We saw primary poverty, but, in a state of full employment, it was probably only slightly more than our own. Drunkenness exists and is, I suspect, a greater problem than in Britain. We could get no information about suicide rates. Some at least of the problems of an aging society have not yet been experienced. The oft-repeated claim that prostitution has disappeared, and that child delinquency and crime are hardly to be seen, cannot be accepted without access to records which we were in no position to obtain. But the prevailing atmosphere of restraint and conformity which has followed long years of restrictive measures may well be developing novel social problems. An observation of possible significance in this context was the small number of calls, in comparison with our own, upon the general practitioner. When all the more obvious cushioning effects have been taken into account—and there were a number of alternative forms of service which the more elaborate machinery of the Russian health services provided—I was left with a strong impression that the atmosphere of the Russian state does something in itself to reduce the social problems, which are a common component of our own disease picture. The driving forces of the Soviet faith and dogma, the life of conformity, and the absence of individual choice, lessen conflict, reduce neurosis and prevent psychosomatic disorders. It is not impossible that one of the prices to be paid for liberty is social problems, crowded surgeries and swollen out-patient departments.

QUESTIONS ANSWERED : ANTWOORDE OP VRAE

Q. A young Coloured teacher of 30 has consulted me with regard to his duodenal ulcer. He has been bothered with it for several years, and has had two episodes of melaena. He is naturally not anxious to have an operation. Will you kindly advise on the line of treatment I should follow?

A physician replies

There is no simple answer to this question. In general, operation for the treatment of duodenal ulcer at the age of 30 should, if possible, be avoided. unless some complication has arisen.

Gastro-intestinal bleeding is a complication and, if massive, is a relative indication for operation, though less so for young than for old people. It is not stated how recent the two episodes are, nor how severe. If they have both occurred recently, if they have been severe and it is thought that bleeding continues, operation is indicated. If, however, what is meant is that he has had isolated attacks of tarry stools in the past, not severe enough to need transfusions, operation is not indicated on these grounds

alone. If the patient has developed other complications, such as pyloric obstruction, or a penetrating ulcer, medical treatment will not succeed. (One assumes that an acute complication such as perforation is not applicable here.)

If there are no obvious complications and if the bleeding has been mild, a very important consideration is whether the patient has had adequate medical treatment. This means complete rest for at least a month, with diet, antacids, anti-spasmodics and sedatives. It also means the adherence to a modified diet with regular meal-times, for long periods afterwards. The temperament of the patient is also very important. If he is the over-conscientious, worrying type, as many of these patients are, or if he finds it impossible to resist rich foods and drink, the chances of a good result with medical treatment are less favourable. It is difficult to lay down a definite programme *in vacuo*, but if he has followed orthodox treatment, say for 2 years, and still has troublesome symptoms, operation should be considered even in the absence of complications. Duodenal ulcers have a well-known tendency to relapse and there are unfortunately some cases which do so even in spite of careful medical treatment. These cases eventually find their way to surgery.

It is essential to make a careful clinical assessment of the above-mentioned points with serial X-rays before advising the patient.

A surgeon replies

It is probably true that a duodenal ulcer is one of the responses to prolonged stress. There is no doubt that the coloured school teacher belongs to a class which is particularly subjected to periods of emotional stress and neurotic manifestations.

Better educated, more intelligent than his fellows, he has a social status to maintain far and away ahead of the remuneration which he receives for his services. The older he becomes and the bigger his domestic responsibilities become, the greater the disparity between his needs and his earnings.

With this ever-present stimulus to hypersecretion, it is probable that medical treatment will fail to control the recurrent periods of active ulceration, which in this case have been present for several years and are of a sufficiently severe degree to result in haemorrhage and consequent melaena.

I would therefore be inclined to persuade this patient that his best hope for the future lies in operative treatment—sub-total gastrectomy.

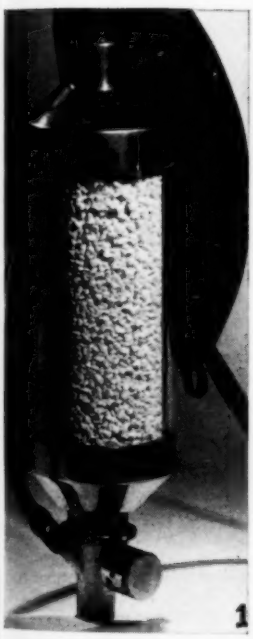
NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

AN IMPROVED CARBON DIOXIDE ABSORBER

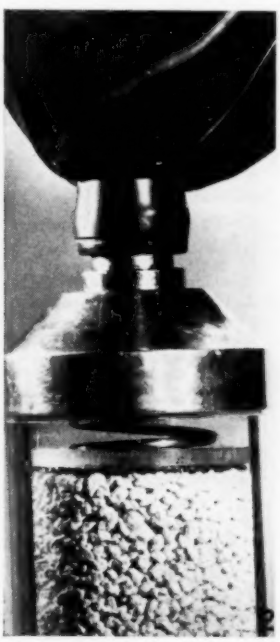
H. H. SAMSON, *M.B.E.*, M.R.C.S., L.R.C.P.*

The disadvantages of carbon-dioxide absorbers hitherto available in anaesthesia have been these:

1. The Waters canister cannot be completely filled with the absorbent granules, as becomes evident when the canister is



1



2

moved from the vertical. This vitiates the purpose of the apparatus, for most of the respired gases will fail to pass between the granules. This is obviously undesirable for anything less than the maximal absorption may be dangerous.

2. Complete filling is a laborious and time-wasting procedure and in any event is not possible. If the granules are heaped up and the screw-in head tightly sealed, some of the granules are liable to become powdered by forceful compression and this might constitute a barrier to the flow of gases. Again, the presence of powder is undesirable, because it may be insufflated. If it is expelled before use, by blowing air through the canister, the level of the granules will drop even further.

3. Loose packing of granules tend to increase dead space. This is an increased danger especially when the canister is used as a to-and-fro unit.

An appliance has been designed to meet these objections (Fig. 1). The main improvement consists of a metal spring attached to the screw-in end, which exerts steady but not excessive pressure on the granules, *via* a *movable filter-plate* (Fig. 2).

The canisters are transparent and unbreakable and can be obtained in different sizes to fit the screw-in ends.

The apparatus is obtainable from Protes Holdings Ltd, Johannesburg (and branches).

* * *

Maybaker (S.A.) (Pty.) Ltd. make the following announcement concerning the introduction of 3 new products:

'*Anthiphen*' *brand dichlorophen* is a new anthelmintic preparation which by extensive clinical investigations in South Africa has been found both safe and effective in the treatment of human infestation by the tapeworms *Taenia saginata* and *Dipylidium canis*. The expulsion of round worms has frequently been observed after the administration of dichlorophen, so that the compound would appear to be effective against this parasite. It is anticipated that Anthipen will be effective against *T. solium*.

Anthipen is supplied as 0·5 g. tablets in containers of 12 and 500. Dosage is based on one tablet per 16 lb. body-weight, the total dose being taken at the one time. No ill effects are to be expected. The use of Anthiphen involves no interference with the patient's ordinary routine, and no starving or purgation is required.

'*Brolene*' *brand dibromopropamidine isethionate Eye Ointment* is a new preparation for the treatment of acute and chronic conjunctivitis and corneal ulceration caused by a variety of organisms, and for the prevention and treatment of infection in superficial traumatic eye lesions.

Brolene contains 0·15% of dibromopropamidine isethionate in the B.P. base for eye ointments (wool fat 10% and soft yellow paraffin 90%), and it is supplied in 5 g. applicator tubes.

'*Biliodyl*' *brand phenobutiodil* is a new oral cholecystographic medium. It may be employed by the usual technique for oral

* Formerly Hon. Anaesthetist to the Johannesburg Hospital.

cholecystography, the interval between ingestion and the maximum gall-bladder concentration being the convenient one of about 12 hours.

The average adult dose of Biliodyl is 3 g. (6 tablets), but this may be increased if desired. Excellent visualization of the gall-bladder is secured when there is no gross dysfunction, together with visualization in most cases of part, or occasionally even the whole, of the biliary tree. Side effects, apart from the nausea so commonly complained of by 'gall bladder patients' are mild and infrequent, Biliodyl being probably superior in respect of tolerance to other cholecystographic agents in use, and unabsorbed residues in the hepatic flexure are not seen.

Biliodyl is supplied as tablets of 0·5 g. phenobutiodil in tubes of 6 tablets.

PASSING EVENTS : IN DIE VERBYGAAN

Tubercle, the journal of the British Tuberculosis Association, has since the beginning of 1956, appeared two-monthly in an enlarged size with improved format. In addition to tuberculosis the journal deals with respiratory disease in general and related infections, for example, leprosy: laboratory as well as clinical and epidemiological aspects are included. Dr. J. R. Bignall, of the Institute of Diseases of the Chest, Brompton Hospital, London, has recently been appointed editor. The December number of the journal contains original articles on tuberculin insensitivity in pulmonary tuberculosis, the pathological and bacteriological examination of resected lung specimens, clinical trials of chemotherapy in African patients, the vole bacillus and mass radiography surveys.

* * *

The Society for Biological Rhythm will hold its Sixth Conference on 26-28 August 1957 in Semmering in Austria. The main theme will be 'Time in Biology'. Application for papers to be read should be submitted before 30 April 1957 to the Secretary, A. Sollberger, Anatomical Dept., Caroline Institute, Stockholm 60, Sweden, who will be glad to supply further details at request.

* * *

Dr. M. Jordaan, M.D., Ph.D., Borschirurg, van Groote Kerk-Gebou 328, Adderleystraat, Kaapstad, het sy huisadres verander na 501 Rockaways, Hoofweg 225, Drieankerbaai, Kaapstad. Telefoon: huis, 4-4814; kamers, 2-0989.

* * *

Drs. H. and B. Hirschson, Radiologists, Union House, Queen Victoria Street, Cape Town, are occupying new consulting rooms on the 4th floor, Federal Building Roggebaai (foreshore), Cape Town, as from 1 February 1957. The telephone numbers, 2-7012 and 2-1462, remain unchanged.

* * *

Dr. P. D. Combrink, formerly Assistant Superintendent at the Pretoria General Hospital, has been appointed Assistant Secretary (Transvaal) of the Medical Association of South Africa. Dr. Combrink assumed duty on 1 January and is at present living in Pretoria.

* * *

Dr. P. D. Combrink, voorheen Assistent-Superintendent by die Pretoria Algemene Hospitaal, is as Assistant-Sekretaris (Transvaal) van die Mediese Vereniging van Suid-Afrika aangestel. Dr. Combrink het sy pligte op 1 Januarie aanvaar en is tans in Pretoria woonagtig.

* * *

Workmen's Rehabilitation Centre, cr. Esselen and King George Streets, Hospital Hill, Johannesburg. The next clinical meeting will be held on Tuesday 29 January at 5.15 p.m. in the gymnasium of this centre. Mr. W. T. Ross will present a case of compound fracture of the foot, and Mr. D. J. Retief, one of arthrodized foot. All doctors are welcome to attend and join in the discussion.

* * *

Empire Medical Advisory Bureau. The *Journal* has received from the Empire Medical Advisory Bureau (Medical Director, Brigadier H. A. Sandiford), B.M.A. House, Tavistock Square, London, W.C. 1, a copy of its periodical Summary of Regulations for Postgraduate Diplomas and of Courses of Instruction in Postgraduate Medicine in the United Kingdom. The publication runs to 28 pages. Copies are available at the Universities in South Africa which have faculties of medicine.

* * *

Union Department of Health Bulletins. Summary of the Bulletins for the 4 weeks ended 10 January 1957.

Plague: Nil.

Smallpox: Nil.

Typhus Fever: Week ended 19 December 1956—1 Native case in the Native Location, Umtata (diagnosis confirmed by laboratory tests). Week ended 3 January 1957: No further cases reported from the districts of Umtata and Graaff Reinet since the notifications in the Bulletins for weeks ended 29 November and 19 December 1956. These areas may now be regarded as free from infection.

Epidemic Diseases in other Countries.

Plague: Nil.

Cholera in Chalna, Chittagong, Dacca (Pakistan), Calcutta (India).

Smallpox in Kabul (Afghanistan), Damman (Arabia), Kandahar, Ahmedabad, Bombay, Delhi, Visakhapatnam, Allahabad, Calcutta, Jodhpur, Madras, Karikal, Quilon (India), Margil, Djakarra, Tjirebon, Samarinda, Baghdad, Basra, Mosul (Iraq), Nairobi (Kenya), Mogadiscio (Somalia), Dar-es-Salaam (Tanganyika), Karachi, Kuwait: Dacca (Pakistan).

Typhus Fever: Alexandria, Cairo (Egypt), Baghdad (Iraq).

REVIEWS OF BOOKS : BOEKRESENSIES

ANAESTHETICS

Anaesthetics for Medical Students. Third Edition. By Gordon Ostlere, M.A., M.B., B. Chir. (Camb.), D.A. and Roger Bryce-Smith, M.A., D.M. (Oxon.), F.F.A.R.C.S. with a Foreword by C. Langton Hewer, M.B., B.S., M.R.C.P., F.F.A.R.C.S. Pp. viii + 116. 10s. net. London: J. & A. Churchill Ltd. 1956.

Contents: Foreword. Preface. I. Introductory. II. The Patient. III. The Airway. IV. Signs of Anaesthesia. V. The Anaesthetic Drugs. VI. Apparatus. VII. Endotracheal Anaesthesia. VIII. The Condition of the Patient: Shock. IX. Post-Operative Complications. X. Local and Spinal Analgesia. XI. The Choice of Anaesthetic. XII. How to Give an Anaesthetic. Index.

In the medical curriculum today, packed as it is with a multitude of special subjects, some must necessarily receive only scant attention from the medical student. Anaesthetics has long been viewed as one such subject, and realizing this the authors have taken much trouble to present the subject in a compact yet comprehensive manner and in such a way as to impose a minimum burden on the reader, both mentally and in its physical form.

This small book lays emphasis on practical anaesthetics and provides the student with an accurate knowledge of, and a healthy regard for the dangers and emergencies he may meet, and sets out clearly how these dangers may be avoided and the emergencies dealt with. The subject matter combines well-chosen summaries of facts pertaining to all types of anaesthesia, nicely balanced with reference to those matters upon which dogmatism is impossible, and is written in the easily readable way which is characteristic of Gordon Ostlere.

This third edition has been completely revised and brought up to date by the addition of sections on muscle relaxants and

recent developments in the fields of local, spinal and obstetric anaesthesia. It fills most satisfactorily a big need on the part of the medical student, to whom it can be thoroughly recommended as a product born of wide experience in teaching anaesthetics. It should also be a source of great comfort and knowledge to the intern whose duty it is to become competent at least in the safe administration of the occasional anaesthetic.

A.B.B.

SECRETION OF URINE

Modern Views on The Secretion of Urine. The Cushny Memorial Lectures. Edited by F. R. Winton, M.A., M.D., D.SC. Pp. vii + 292. Illustrations. 30s. net. London: J. & A. Churchill Ltd. 1956.

Contents: Introduction. I. Standard Renal Clearances in Mammals. S. E. Dicker, M.D., Ph.D., D.SC. II. Tubular Reabsorption and Secretion. M. Grace Eggleton, D.SC., M.R.C.S., L.R.C.P. III. Pressures and Flows in the Kidney. Professor F. R. Winton, M.A., M.D., D.SC. IV. The Process of Secretion. L. E. Bayliss, B.A., PH.D., F.R.S.E. V. Antidiuresis. Mary Pickford, D.SC., M.R.C.S., L.R.C.P. VI. The Adrenal Cortex and Renal Function. J. D. N. Nabarro, M.D., M.R.C.S., M.R.C.P. VII. Genetic Aspects of Tubular Function. H. Harris, M.A., M.D. VIII. Metabolism and Renal Function in the First Two Days of Life. Professor R. A. McCance, C.B.E., M.A., Ph.D., M.D., F.R.C.P., F.R.S. and Elsie M. Widdowson, D.SC. IX. Functional Aspects of Renal Failure. Professor M. L. Rosenheim, M.D., F.R.C.P. X. Osmotic Diuresis in Acute Tubular Necrosis. Professor G. M. Bull, M.D., F.R.C.P. Index. M. Grace Eggleton.

For the practitioner who is interested in recent advances in this subject and for the specialist who wishes to be informed about detailed questions and the relevant literature, this is a book well worth possessing. Its contents fill a gap between the standard book on the kidney by H. W. Smith and the ordinary textbook.

Of special interest are the chapters on (1) 'The pressures and flows of blood and urine within the kidney', (2) 'Genetic aspect of tubular function', and (3) 'Metabolism and renal function in the first two days of life'.

The different theories which try to explain 'the curious and unique capability of the kidney to keep its blood flow fairly constant despite large changes in arterial pressure' give insight into very interesting phenomena. The old conception, that Henle's loops, and the proximal and distal tubules, possess different functions as far as water reabsorption is concerned, seems invalid. The principle of hairpin counter-current, a well-known principle in physics, may be a possible explanation of the pressure gradients between the cortex of the kidney and the depths of Henle's loop, including its surrounding tissues.

The book is written in simple clear language and the important points are well illustrated with diagrams and tables.

The literature referred to is listed after each chapter. The author and subject index at the end of the book makes it possible to find easily many sources of information on the varied aspects of renal physiology and pathology.

As renal function is still one of the more obscure activities of the body and difficult to elucidate; this book is of especial interest, not only to the renal physiologist, but to all medical men.

R.M.W.

TUBERCULOSIS CONTROL

Tuberculosis control: Plans for intensified inter-country action in Europe. Report of a Study Group. *World Health Organization: Technical Report Series*, 1956, No. 112; 14 pages. Price 1s. 9d, $0.30 or Sw. fr. 1. Also available in French and Spanish. Local Sales Agent: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724, Pretoria.

This report summarizes the discussions of a Study Group convened by the World Health Organization in order to enable European countries to exchange views on recent experience in tuberculosis control and on the advisability of re-orienting their control programmes, following the rapid decrease in tuberculosis mortality which has occurred in recent years. The Group limited its discussions to pulmonary tuberculosis.

The report first examines the measures to be taken to ensure the comparability of statistical data from different countries. It recommends, *inter alia*, that a precise definition should be given for the terms 'case of pulmonary tuberculosis' and 'morbidity rate', which are often used with different meanings in different countries. Furthermore, whereas in the past mortality rates have sufficed for estimating and comparing the prevalence of tuberculosis, it is now necessary to have other indices, which might be obtained either from routine health statistics or from special surveys. The establishment in each country of a central tuberculosis register, carefully kept up to date, would be of great value for the epidemiological study of the disease. Among other features, it would make it possible to obtain at all times, by an inventory of the register, details of the prevalence of bacillary cases. Should it not prove possible, at least in the near future, to organize a national register, then, to begin with, regional registers could be established which would be gradually extended to cover the whole country. An annex gives a list of the information which should be collected for each case included in the register.

With regard to the indices which can be obtained from special surveys, the report recommends, on the one hand, the tuberculin index and, on the other, an index based on a complete examination for tuberculosis of sample population groups. The latter index is the more reliable, provided that the groups examined include persons of all ages; an attempt should be made to do this wherever feasible. If complete population groups cannot be examined, the military conscript class would appear to be the most suitable for purposes of international comparison. As to the tuberculin index, although its value is more restricted, it can be obtained in practically all countries; it should be widely used as a first step.

Among specific measures for tuberculosis control, case-finding will continue to play an important part, but the method to be employed will vary according to the country. In regions with low prevalence, the examination of contacts will become increasingly necessary. The report stresses the role which dispensaries will, for a considerable time yet, have to play as diagnostic centres; in particular, they should continue to be responsible for the examination of specially exposed groups. The report gives general directions for the systematic examination of the population, covering either total population groups or special groups, such as patients admitted to hospital, old people, and students. A suggested code for the classification of the results of examinations is given in an annex.

The report points out the value of BCG vaccination as a supplementary preventive measure, particularly for the contacts of infectious cases and for highly exposed groups. The control of bovine tuberculosis will become of increasing importance for prevention of the disease in human beings, owing to the relative decrease in the number of infectious human cases.

Hospitalization of infectious cases will continue to be a major factor in tuberculosis control for a number of years; however, it is to be expected that in Europe the number of beds required for tuberculosis will diminish. The extensive use of new anti-tuberculosis drugs raises the problem of the resistance of the bacilli to such drugs. Information should be collected on the frequency of new cases of infection with resistant strains by means of a systematic study of the bacilli isolated from all new cases in a limited, defined area.

Finally, the report stresses the need to encourage the use of rehabilitation facilities, the participation of physicians in the control of the disease, the education of the public, and the provision of social and economic assistance for patients and their families.

NEUROLOGY

Leitfaden der Neurologie. Von Prof. Dr. Med. F. Laubenthal. 6., Erweiterte und Verbesserte Auflage. XII + 315 Seiten. 87 Abbildungen. D.M. 29.70. Stuttgart: George Thieme Verlag. 1956.

Inhaltsverzeichnis: Vorwort. A. Die neurologischen Untersuchungsmethoden. I. Die Anamnese. II. Der Inspektionsbefund. III. Die Funktionsprüfungen. IV. Die Prüfung auf Hirndrucksymptome und meningitische Symptome. V. Die wichtigsten Prüfungen auf tropische, vasomotorische und sonstige vegetative Funktionsstörungen. VI. Schema eines neurologischen Untersuchungsganges. VII. Entnahme und Untersuchung des Liquor cerebrospinalis. VIII. Die röntgenologischen Hilfsuntersuchungen. IX. Die Elektrencephalographie. B. Die neurologischen Syndrome und Erkrankungen. I. Die idiopathischen Myopathien. II. Syndrome und Erkrankungen des peripheren motorischen Neurons. III. Syndrome und Erkrankungen des peripheren extramedullären sensiblen Neurons, Herpes zoster (Gürtelrose). IV. Erkrankungen sowohl der motorischen als der sensiblen Wurzeln, einschliesslich der Erkrankungen der Cauda equina. V. Die Plexuserkrankungen. VI. Die Erkrankungen der wichtigsten peripheren Nerven. VII. Syndrome und Erkrankungen der Pyramidenbahnen. VIII. Syndrome und Erkrankungen der Hinterstrangbahnen. Die Tabes dorsalis. IX. Die spinocerebellare Heredoataxie. X. Die Myelosen bei Mangelkrankheiten. XI. Syndrome und Erkrankungen vorzugsweise der grauen Substanz. XII. Syndrome der Querschnittserkrankungen. XIII. Syndrome und Erkrankungen

des Kleinhirns. XIV. Syndrome und Erkrankungen des Strinhirns. XV. Syndrome und Erkrankungen des Schläfenhirns. XVI. Syndrome und Erkrankungen der Zentralregion. XVII. Syndrome und Erkrankungen des Scheitellappens. XVIII. Syndrome und Erkrankungen des Occipitallappens. XIX. Syndrome der aphasischen, apraktischen und agnostischen Störungen. XX. Syndrome und Erkrankungen des extrapyramidalen Systems. XXII. Syndrome und Erkrankungen des Balkens. XXIII. Syndrome und Erkrankungen der Hirnhäute und der liquorhaltigen Räume. XXIV. Syndrome und Erkrankungen der Hypophyse und ihrer Nachbarshaft. XXV. Syndrome und Erkrankungen der Epiphyse und der Vierhügelgegend. XXVI. Syndrome der narkoleptischen Erkrankungen (Narkolepsie). XXVII. Syndrome der nichtsystematisierten bzw. der nicht vorzugsweise an bestimmte Orte gebundenen Erkrankungen des Zentralnervensystems. XXVIII. Syndrome der cerebralen Krampfanfälle (einschliesslich der erblichen Fallsucht und ihrer Differentialdiagnose). XXIX. Syndrome und Erkrankungen des autonome gefässinnervierenden (vegetativen) Systems. XXX. Allgemeine Bemerkungen über die traumatischen Schädigungen des Zentralnervensystems. XXXI Syndrome der neurologisch wichtigsten Vergiftungen. XXXII. Syndrome der Schädigungen des Nervensystems durch Blitzschlag und technische Elektrizität. XXXII. Einige (Bemerkungen zur Abgrenzung organischer Nervenleiden gegenüber psychogenen (neurotischen) Erkrankungen und Reaktionen. Anhang. Sachverzeichnis.

This book, which is entitled 'A Guide to Neurology', covers in its briefness the whole field of Neurology. Starting with the history and neurological examination of the patient, the author goes on to describe the removal and examination of cerebrospinal fluid. The radiological examinations, such as encephalography, ventriculography and arteriography, are shortly but competently dealt with, and the next chapter deals briefly but lucidly with the present state of electroencephalography and its usefulness in the diagnosis of neurological problems.

The major part of the book then goes on to deal with the various syndromes which result from pathology of different parts of the brain. These chapters give a very good description of the various symptomalogical patterns found in disease of different parts of the central nervous system.

Finally there is a chapter on important poisons of the nervous system, and the last chapter deals with the differential diagnosis of organic nervous disease and psychogenic disorders.

This book, though brief for the vast field it has to cover, is very concise and complete. It can be recommended to anyone in the medical profession, whether he be a student or a neurologist, because of the clear and up-to-date rendering of the subject matter.

H.L.d.V.H.

SICKNESS ABSENCE STATISTICS

Health in Industry. A Contribution to the Study of Sickness Absence. Experience in London Transport. Pp. 177. 40s. 3d. + 1s. 3d. delivery. Published on behalf of the London Transport Executive by Butterworth & Co. (Publishers) Ltd. London: South African Office: Butterworth & Co. (Africa) Limited, P.O. Box 792, Durban. 1956.

Contents: Foreword by the late Lord Horder. G.C.V.O., M.D., F.R.C.P. Preface. An account of the principles and methods followed in compilation of the London Transport Sickness-Absence Statistics. Appendix A—Broad Diagnostic Groups. Appendix B—Comparison of actual and expected sickness absence. Drivers and Male Conductors, Central Buses, 1949-52. Motormen and Guards, London Transport Railways, 1950-52. Male Workshop Staff, Bus Overhaul Works, 1949-52. Clerical and Technical Staff, 1950-52. Index.

This book represents the results of a two-man investigation into the incidence of sickness and absenteeism among the indoor and outdoor staff of the London Transport organization. The two investigators are Dr. L. G. Norman, B.Sc., M.D., D.P.H., Chief Medical Officer, and Mr. F. H. Spratling, Staff Administration Officer. Of the accuracy of the figures there can be no doubt.

The late Lord Horder states in his Foreword that 'the relations between Health and Industry may be thought of in terms of a two-way track. Advances in the science and art of medicine can be of great service to industry if properly applied, and industry can make very useful contributions to medicine by studying the environmental conditions of large groups of workers and the influence of these conditions upon the health of the individual.'

The investigation was originally planned to prove or disprove the statement, which has been freely made, that the work of bus drivers and conductors was unduly injurious to their health. There was a widespread belief that gastric disorders were common amongst them.

Of particular interest is the account of the principles and methods followed in the compilation of the London Transport sickness-absence statistics.

Much of the book consists of comparative tables and graphs, and some valuable texts are also included. As the London Transport Executive felt that no standards existed for the measurement of the incidence of sickness absence, the Executive decided to publish certain of the statistical material dealing with the incidence of sickness absence which has been derived from the first few years' operation of the Central Record of Staff Statistics, with the object of providing bases of measurement for the use of others concerned with questions of industrial health.

This book should prove of great assistance to statisticians and those concerned with the problem of sickness absence.

L.B.

ALCOHOLISM

Alcoholism. A Manual for Students and Practitioners. By Lincoln Williams, M.R.C.S., L.R.C.P. Pp. x + 62. 8s. 6d. + 7d. Postage Abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1956.

Contents: Preface. Introduction. I. Drinking Patterns. II. Personality Factors. III. The Course of Alcoholism. IV. Heredity. V. The Mental Effects of Alcoholism. VI. Physical Effects of Alcoholism. VII. How to Approach an Alcoholic. VIII. Medico-Legal Aspects of Alcoholism. IX. Methods of Detoxication. X. Disruption of the Drinking Pattern. XI. Psychotherapy. XII. Group Therapy. XIII. Alcoholics Anonymous. Epilogue. Bibliography. Index.

This small, valuable book is from the pen of Lincoln Williams, Medical Director of The Hall, Harrow, and a member of the Council of the Society for the Study of Addiction. In the preface he states that he once shared the view 'that the alcoholic is an unprepossessing and unrewarding individual and hopeless to treat.' He adds: 'A visit to America in 1947 completely changed my whole attitude.' The concept of alcoholism as a disease supplanted the precept of alcoholism as a moral depravity. The purpose of this book is to stimulate interest in 'alcoholism, its aetiology, diagnosis and treatment.' Space only allows reference to certain headings which, however, indicate a thorough study of the subject: 'Drinking patterns', 'the woman alcoholic', 'the course of alcoholism', 'heredity', 'mental and physical effects', etc.

It is suggested that, as skilled nursing is required in certain cases and potent drugs are indicated, treatment should be carried out in clinics established for the purpose. We are not likely to reach this soon in South Africa, but an excellent beginning has been made in the Transvaal, where beds for alcoholics have been provided in certain Provincial hospitals.

In the treatments for D.T. and deep intoxications, vitamins, ACTH, curethyl, antihistamines etc.—mostly by intravenous injection—are recommended and their use and the necessary precautions are fully described.

In setting about 'disruption of the drinking pattern' the conditioned-reflex treatment and the use of emetine, apomorphine or antabuse are recommended and the dangers associated with them mentioned. It is pointed out that the total personality of the patient should be studied, and by the various techniques described, as well as by the personality of the medical adviser, a change should be brought about in the alcoholic's attitude to his drinking problem. 'Total abstinence will then become an individual choice and a voluntary way of life which cannot be deviated from without relapse.' The Alcoholics Anonymous programme of recovery with its twelve steps—including a decision 'to turn our will and our lives over to the care of God "as we understand Him"' has been very helpful. The author states: 'Taking it all round A.A. is an outstanding example of the psychodynamics of Group therapy.'

There is definite evidence that the number of alcoholics in our country is increasing. The treatments in this book should be carefully studied. Attention, however, should not be diverted from the importance of prevention as well as cure. The World Health Organisation includes alcohol in its list of habit-forming drugs.

A.S.W.

TOXIC HAZARDS OF PESTICIDES TO MAN

Toxic Hazards of Pesticides to Man, Report of a Study Group. *World Health Organization: Technical Report Series*, 1956, No. 114, 51 pages. Price: 3s 6d. $0.60 or Sw. fr. 2. Available also in French and Spanish. Local Sales Agent: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724, Pretoria.

The widespread and ever-growing use of pesticides to control vectors of disease and to safeguard crops has brought in its wake

some special problems. Foremost among these is the burning question whether the wholesale application of such products is likely to have an adverse effect on human health. The World Health Organization first took a serious interest in this question in 1952, when it appointed a special consultant—Dr. J. N. Barnes—to study the whole problem of the toxic hazards of pesticides to man. In his report, published in 1953 as No. 16 in the WHO Monograph Series, Dr. Barnes concluded that pesticides, if properly used, did not appear to represent any immediate or serious threat to human health. Nevertheless, he went on to say that a continuing watch should be kept on the situation, since new uses and the development of new materials might at any time introduce potentially dangerous factors, and advocated that the subject should be studied further on as wide a basis as possible. As a result of Dr. Barnes's recommendations, a Study Group, composed of experts with specialized knowledge of the toxicity of pesticides on the one hand and of their practical use in agriculture and public health work on the other, was convened by WHO in June 1956.

In its introduction, the Group's report points out that the evolution of resistant strains of insects may make it necessary in the near future to use new types of insecticides in malaria-control work, and states that, in view of this, the Group 'considered in some detail the recommendations that might be made to enable more toxic insecticides of all kinds to be used safely in public health work'. Then, after defining the term 'pesticides', the report proceeds to discuss the toxic properties of these substances, stressing the importance of carrying out field investigations as well as laboratory experiments in this connexion.

This is followed by a review of the incidence and nature of poisoning, in which the clinical signs of poisoning are described and laboratory methods for detecting the presence of pesticides in the body are discussed.

Attention is then turned to the more immediate and practical problem of the measures to be taken to protect operators handling pesticides, with emphasis on the importance of distributing information on hazards to all workers concerned with pesticides. Both the general precautions to be observed by all spray operators and the special precautions necessary when dealing with the more toxic materials, such as dieldrin and the organo-phosphorus compounds, and when carrying out aerial spraying operations are described.

Next, the report deals at some length with the question of the hazards arising from the deliberate or accidental addition of pesticides to drinking-water or food supplies, and more briefly with the effects on domestic animals and fish of the extensive use of pesticides.

In conclusion, the role of governmental regulation in the prevention of hazards during the manufacture, handling, and application of pesticides and the control of pesticide residues in food is considered.

Annexed to the report are a summary of the results of a questionnaire which was sent to a number of laboratories engaged in research on the vertebrate toxicology of pesticides to find out how many staff were employed on such work and what types of investigation were being carried out; a brief account of a study of the degree of exposure of workers to insecticides; and recommendations for the design and use of respirators.

SURGICAL DIAGNOSIS

Surgical Diagnosis. By Philip Thorek, M.D., F.A.C.S., F.I.C.S. Pp. xi + 320. 96s. Philadelphia and Montreal: J. B. Lippincott Company. 1956.

Contents: 1. Head. 2. The Oral Cavity. 3. Neck. 4. Chest. 5. The Breast. 6. Esophagogastro-intestinal Tract. 7. Liver, Gallbladder and Bile Ducts. 8. Pancreas. 9. Spleen. 10. Hernia. 11. Genito-urinary Conditions. 12. Gynecologic Conditions. 13. Abdominal Injuries. 14. Superior Extremity: The Hand. 15. Inferior Extremity: Varicose Veins. Index.

Logan Clendening says, with truth, 'Clinical diagnosis is an art, and the mastery of an art has no end; you can always be a better diagnostician.' This book, therefore, is welcome. It is interestingly written—often arrestingly so—and presents its material clearly at an undergraduate level. The illustrations are excellent, and the double-column format is good. No one book can contain all the guides to clinical surgical diagnosis. This book, unfortunately, is very incomplete, and nowhere more noticeably so than in dealing with the extremities, where almost every condition of injury and inflammation is either omitted or inadequately dealt with. Scrotal Enlargements are dealt with in less than a hundred words, most of which are not even medical and the rest of which are lists of pathological conditions with no clinical differentiation attempted.

A bushel of surgical clinical observation and deduction cannot be compressed into a pint measure—however decorative.

R.D.H.B.

BOOKS RECEIVED : BOEKE ONTVANG

Les Troubles Trophiques Des Inférieurs D'Origine Veineuse. Published under the direction of Jacques Charpy and Marius Audier. Pp. 376. 156 Figures. 2.500 fr. Paris: Masson et Cie. 1956.

The Practice of Medicine. Sixth Edition. Edited by Jonathan Campbell Meakins, C.B.E., M.D., LL.D., D.Sc. Pp. 1916. 318 Illustrations. £6 16s. 0d. St Louis: C. V. Mosby Company. 1956.

An Alcoholic's Story. By 'Alkie'. Pp. 156. 7s. 6d. Cape Town: Maskew Miller Limited. 1956.

Price's Text-book of The Practice of Medicine. Ninth Edition. By Various Authors. Edited by Donald Hunter, M.D., F.R.C.P. Pp. xiv + 1774. £3 3s. 0d. London, New York, Toronto: Oxford University Press. 1956.

Practical Pediatric Dermatology. By Morris Leider, M.D. Pp. 433. 280 Photographs and 13 Drawings. South African Price £4 9s. 3d. St. Louis: C. V. Mosby Company, 1956.

Kurze Geschichte der Vestibularisforschung. By Ernest Wodak, M.D. Pp. viii + 162. 8 Photos. DM 13.80. Stuttgart: Georg Thieme Verlag. 1956.

Official History of the Canadian Medical Services 1939-1945. Volume One—Organization and Campaigns. Edited by W. R. Feasby, B.A., M.D. Maps drawn by Captain C. C. J. Bond. Pp. xii + 568. 8 Charts. 48 Illustrations. $5.00. Ottawa: Queen's Printer and Controller of Stationery. 1956.

Canned Foods—An Introduction to their Microbiology. Fourth Edition. By J. G. Baumgartner and A. C. Hersom, B.Sc., A.R.I.C. Pp. 291. 35 Illustrations. 21s. net. London: J. & A. Churchill Ltd. 1956.

The New Commonsense About Sex. By Leonora Eyles. Pp. 96 + 3 figures. 6s. net. London: Victor Gollancz Ltd. 1956.

Pulmonary Emphysema. Edited by Alvan L. Barach, M.D. and Hylan A. Bickerman, M. D. Pp. x + 545. 185 Illustrations. 80s. net. Baltimore: Williams & Wilkins Company. London: Baillière, Tindall and Cox. 1956.

The Care of the Expectant Mother. By Josephine Barnes, D.M., F.R.C.S. (Eng.), F.R.C.O.G. Pp. x 270. Illustrations. 30s. net. London: Pitman Medical Publishing Co. Ltd. 1956.

Orthopädische Gymnastik. Third Edition. Prof. Dr. Hohmann and L. Jegel-Stumpf. Pp. xvi + 138. 218 Illustrations. DM 19.50. Stuttgart: Georg Thieme Verlag. 1956.

The Infantile Cerebral Palsies. By Eirene Collis, W. R. F. Collis, William Dunham, L. T. Hilliard and David Lawson. Foreword by Sir Francis Walshe. Pp. xi + 100. 15s. net. London: William Heinemann Medical Books Ltd. 1956.

The Year Book of Pediatrics (1956-1957 Year Book Series). Edited by Sydney S. Gellis, M.D. Pp. 480. 134 Illustrations. $6.75. Chicago: Year Book Publishers Inc. 1956.

Pediatrics. Edited by Donald Paterson, M.D. and John Ferguson McCreary, M.D. Pp. xvi + 654. 192 Illustrations. £5 10s. net. London: Pitman Medical Publishing Co. Ltd. 1956.

Religious Factors in Mental Illness. By Wayne E. Oates. Pp. xv + 239. 16s. net. London: George Allen & Unwin Ltd. 1957.

The Fifth International Conference on Planned Parenthood. Report of the Proceedings 24-29 October 1955, Tokyo, Japan. Pp. xxviii + 315. £1 1s. London: International Planned Parenthood Federation. 1956.

CORRESPONDENCE : BRIEWERUBRIEK

PROFESSIONAL PROVIDENT SOCIETY OF SOUTH AFRICA

To the Editor: At its meeting on the 10th inst., my Council considered the enclosed letter which had been submitted to it by a member of this Branch. In consequence I have been directed to submit this letter to you for publication at the request of the Southern Transvaal Branch Council.

J. Gluckman
Hon. Asst. Secretary

Southern Transvaal Branch
Medical Association of South Africa
5 Esselen Street
Johannesburg
12 January 1957

Dear Member: As a result of an article by Dr. G. A. Fraser, a member of the Board of the Society, which appeared recently in a medical publication, considerable publicity has been given to a pension scheme for professional people.

I should like to draw the attention of members to the fact that the Society is exploring the possibility of establishing a pension fund in the true sense of the word. The success of such a fund is dependent on legislation being passed to ensure that contributions by self-employed persons to the fund are exempt from income tax and your Society is therefore negotiating with both the Minister of Finance and the Registrar of Pension Funds with a view to having this legislation enacted. It must be pointed out that if the necessary legislation is passed, the income tax concession could only be granted to the members of a pension fund registered by the Registrar of Pension Funds, and would not apply to individual endowment schemes which would only qualify for the existing insurance rebate of 1s. 3d. in the pound up to a maximum of £7 10s. 0d.

Your Board hopes that its negotiations will be successful and that it will be able to publish details of a proposed scheme at an early date.

It would be appreciated if you could give this information to your colleagues who are sure to be interested.

W. A. M. Miller
Chairman

Professional Provident Society of South Africa
1004 Cavendish Chambers
Jeppe Street
Johannesburg
20 December 1956

POOR INSURANCE RISKS

To the Editor: I wonder if it has ever struck the general public how many doctors die comparatively early? Most of these deaths I attribute to the highly successful efforts of the public to shorten our lives. The nagging neurotic, panicky Pam, and cautious Kate; all unite to disturb our rest, spoil our fun, steal our sleep and fray our nerves.

I doubt if the doctor's widow and young children appreciate his efforts in the service of his noble profession. Wake up Noble Profession! Do not pamper the public, but try to discipline them You will still be doing good medicine, but for a much longer and happier period.

Prospective Victim

14 January 1957

THE DILEMMA OF MEDICAL EDUCATION

To the Editor: Editorial comment[1] on the above topic in the *Journal* of 12 January pointed out that (i) many of our most distinguished practitioners entered their life's work with no longer training than 4-5 years, (ii) the young matriculant, bent on a medical career and aspiring to specialize, will have reached the age of 30-35 years before registration as such, (iii) 'original medical thought' ceases at the dangerous age (in more senses than one apparently) of 40 years, (iv) with present medical education only 5-6 years can be counted on per specialist for 'original medical thoughts'.

Since there is no guarantee that these official geese will on registration, or ever, lay golden eggs and, in any case, individuals can't be trained to turn out 'original thought' like a sausage machine, why then, in heaven's name, do we worship the golden image of specialization with such zeal? For medical graduates to believe that only by devoting half of their possibly productive years filling their minds with masses of often useless knowledge will they be fit to make momentous medical contributions, represents the medical variant of the story of the carrot and the donkey.

As medical history shows that medical men are creative when alerted, challenged and absorbed by the problems of practice, why not let us once again 'get down to cases'?

M. Glass

620 Boston House
Strand Street
Cape Town

1. Editorial (1957): S. Afr. Med. J., **31**, 27.

RADIOLOGIE VAN DIE GROOTBOOG VAN DIE MAAG

Aan die Redakteur: Meeste van die vrae wat drs. Denny en Morris gestel het n.a.v. ons artikel oor die radiologie van die grootboog van die maag[2] (hierdie Tydskrif, 17 November 1956, bl. 1097) is heeltemal redelik, en kan as volg beantwoord word:

Ja, die maag is in al hierdie gevalle in die vol en gedeeltelik vol toestande ondersoek, en in rugligging in die Trendelenburg posisie. Ja, die slymvliespatroon is ondersoek, en in die beskrywing van elke geval is spesiaal hierna verwys. Behalwe waar daar 'n radiologiese indikasie is van 'n letsel in die fundus, blaas ons nie as roetine die maag op nie, omdat dit in ons opinie in die res van die maag nie inligting gee wat op ander maniere verkry kan word nie. Ja, die grootboog is deeglik betas en met drukking was die letsels onveranderd. Dit is juis wat gevalle 1 en 4 van belang maak. Op hierdie en ander punte is die onveranderlikheid in voorkoms dan ook gebaseer (d.w.s. al die gewone punte waarop gelet word in elke roetine bariummaal). Dit is nie alles afsonderlik genoem nie, omdat dit o.i. onnodig was in 'n artikel van hierdie aard.

Daar word verklaar dat ons geen inligting verstrek het oor die mate van spastisiteit teenwoordig nie, maar die hele strekking van die artikel is juis om te wys dat daar in die 4 gevalle wat beskrywe is, nie tussen spastisiteit en organiese letsels onderskei kan word nie.

In die illustrasie van geval 2 sien ons kollegas ook 'n infiltrasie van die kleinboog. Ons het nie dieselfde gevolgtrekking gemaak nie, en ook by operasie en in die patologiese ondersoek is verklaar dat die ulsererende massa slegs tot die grootboog beperk was.

Langs die kleinboog is 'n paar vergrote limfkliere gekry. Drs. Denny en Morris verklaar ook dat die tipe ulkus in geval 2 nie die tipe is wat bydra tot moeilike diagnose nie, maar ons sou graag wou hoor hoe hulle in hierdie geval d.m.v. die gewone bariummaal sou onderskei tussen goedaardige en kwaadaardige ulkus en sg. ‚formation cavitaire d'origine dynamique'. As hulle hierdie inligting het, kan hulle dit gerus bekendmaak vir algemene gebruik.

Hoewel daar in geval 3 'n groot adeno-karsinoom van die liggaam en fundus van die maag gevind is, is die oënskynlike defekte op die klein kurvatuur wat ons kollegas in Fig. 3 sien, nie daardeur veroorsaak nie, omdat dit nie konstant was nie.

Drs. Denny en Morris het ons beskrywings krities en deeglik ontleed, waarvoor ons hulle dankbaar is. Ons hoop hulle sal na bostaande uiteensetting meer tevrede wees dat ons nie die probleem van hierdie vier gevalle oordryf het nie.

A. D. Keet
D. G. le Roux

Dumbarton-Gebou en
Groote Kerk-Gebou
Kaapstad
7 Januarie 1957

1. Denny, M. en Morris, L. (1956): S. Afr. T. Geneesk., **30**, 1195.
2. Keet, A. D. en le Roux, D. G. (1956): *Ibid.*, **30**, 1097.